The rural-urban fringe of Edinburgh, 1850-1967

by

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SUMMARY

The rural-urban fringe is that zone around a city into which the urban area is expanding, but which still retains much of its agricultural and open space character. Studies of this transitional area have been carried out around many cities in North America whereas British cities have not been so intensively investigated.

An historical study was undertaken to establish whether or not a fringe existed prior to the introduction of the automobile, since many American researchers have attributed the emergence of this zone to the increased personal mobility made possible by widespread car ownership.

In order to determine the character and changes which have taken place in the form of urban growth an analysis was made of Edinburgh at twenty year intervals after 1850. At each period the inner fringe boundary was delimited, forming a line outwards from which the spread of urban land uses could be identified. In addition a study was made of the degree of agricultural orientation towards the Edinburgh market at ten year intervals after 1866.

These detailed investigations established the fact that during the 19th century urban growth was limited to the immediate vicinity of the built-up area, beyond which was a scatter of institutions and several villages which had begun to assume a dormitory role. In contrast to this restricted zone of urban expansion poor transport facilities for bulky and perishable agricultural produce gave rise to a wide ring of urban oriented farming activity. After 1900 improved transportation media allied with a demand for houses with gardens in semi-rural surroundings led to a rapid outward growth of Edinburgh along the main roads reaching out to and beyond the older dormitory villages. The growing demand for recreation facilities resulted in the multiplication of parks, playing fields and golf courses, which along with many

institutions and agriculture infilled the interstices between the tentacles of urban growth. The implementation of planning legislation in 1947 brought free urban expansion to an end and resulted in the infilling of the star pattern giving rise to a compact urban area around which a Green Belt of agricultural, recreational and institutional land uses was established. This restricted area has forced new urban expansion out of the towns and villages beyond the belt giving rise to a ring of satellite settlements quite separate from the city. Improved transport has negated the necessity for agriculture to depend on the adjacent urban market. This means that the fringe area at the present time is dependent on a few rural land uses which contrasts with the important role played by agriculture during the 19th century.

The form and process of urban growth over the last one hundred years, which had been identified with reference to Edinburgh, were then compared with the more extensively documented rural urban fringe areas around North American cities. In this comparison the differences and similarities between them were highlighted and wherever possible accounted for.

In the appendices a full account is given of the premises used in delimiting the inner boundary of the fringe as well as functions and area which should be investigated in order that the areal extent of the rural-urban fringe around cities in the United Kingdom may be determined.

CONTENTS

"In no other city does the sight of the country enter so far, if you do not meet a butterfly (as did Fergusson) you shall certainly catch a glimpse of far-away trees upon your walk; and the place is full of theatre tricks in the way of scenery.

"For the country people to see Edinburgh on her hill tops is one thing; it is another for the citizen, from the thick of his affairs to overlook the country. It should be of a genial and ameliorating influence in life, it should prompt good thoughts and remind him of nature's unconcern: that he can watch from day to day, as he trots officeward, how the spring green brightens in the wood or the field grows black under a moving ploughshare."

Robert Lewis Stevenson, "Edinburgh".

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INTRODUCTION

Aristotle in applying the principles of organic growth to city size and expansion[1] was one of the first scholars to recognise the dynamic character of urban areas. He believed that a city emerges as part of the social and economic fabric of the society in which it is found. This concept of city development has been substantiated by the work of many modern researchers,[2,3] and basically states that it is wrong to consider cities as static features isolated from the prevailing social and economic climate, as they are living organisms which reflect the wide variety of stimuli which may be in operation at a particular period.

Expansion has been a characteristic common to most cities, though for much of their existence this may have proceeded at a very slow rate. As growth is not achieved by the removal of an area of land from rural use with its immediate conversion into urban uses, a zone which is neither completely urban nor rural emerges. This zone has come to be known as the "rural-urban fringe".

As was pointed out by G.Wehrwein "land problems appear in their most acute form on three fringes or transitional zones:

1. the area between arable farming and grazing,
2. the zone between forests and farms, and
3. the suburban area lying between the built-up area and farms

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1. Aristotle. "The politics of Aristotle" Macmillan & Co., London 1888
2. Mumford, L. "The culture of cities" Secker & Warbury, London, 1938
3. Geddes, P. "Cities in evolution" Williams and Norgate, London 1949.

"In recent years much attention has been given to the two former 'fringes'; the 'Dust Bowl' and the 'cut-over' areas are familiar figures in land utilization literature. Much less has been done by research agencies and administrators in the other 'twilight zone' - the rural-urban fringe. Students of agricultural land problems stop when they come to 'city land' and urban land economists and planners usually stay within the city limits, when they are studying the region or making regional plans."[4]

Most of the published work on fringe areas has originated in North America, where the social and economic conditions influencing urban growth are very different from those found in Great Britain. Despite this, the work done by G.S. Wehrwein, W. Firey, W.T. Martin, L.F. Sehnore and G A. Wissink, to mention only a few, has formed a valuable basis for an investigation into the fringe area around Edinburgh. Sociologists have played an important part in the examination of the rural-urban fringe of North American cities, and the most significant work carried out in Britain, by Dr. R. E. Pahl, is also predominantly sociological in approach.[5]

What is this zone called the rural-urban fringe, and what are the special characteristics which distinguish it from both rural and urban areas? It has been noted in North America that "the urban fringe may be identified as the transitional land between the city and its surrounding agricultural region. The area is not a geographic entity 'per se' because it possesses both features inherent on its rural origin and the qualities acquired from the urban node ..... The dualistic nature of the area prevails in the sense that it is

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4. Wehrwein, G.S. "The rural-urban fringe" Economic Geography vol. XVIII, July 1942, 217-228, 217
5. Pahl, R.E. "Urbs in rure. The metropolitan fringe of Herefordshire" London School of Economics and Political Science, Geographical papers no.2, London 1964.

more urbanised than might be considered legitimately rural and yet is insufficiently structured to qualify as urban."[6]

Young expresses the essential character of the area in North America where urban growth has followed a pattern of large scale sub-division expansion. This difference in development is a very important factor leading to great contrasts between the form of fringe expansion in the United Kingdom and the United States of America. In Britain, prior to the Town and Country Planning Act of 1947, city growth was not subject to the strict regulations enforced at the present time, and as was exemplified by extensive ribbon development very similar to that found in North America: but this Act has enforced planning measures which have resulted in a new form of fringe development. Consequently a description of the general features of the fringe of a British city can be defined as follows.

It is a transitional zone between the city and its surrounding agricultural region. This is an area where both town and country are morphologically intermixed. The areal extent of the fringe is dependent on both the outward expansion of urban land-uses and the urban orientation of the adjacent agricultural economy, as long as the land-uses are contiguous with the built-up area of the city or with other fringe land-uses. However at the present time continuity can no longer be taken as an essential feature of the fringe as the introduction of the Green Belt policy has put strict controls on the land-uses which can be located in the area around the city thus forcing many of them to look for locations beyond this controlled zone. Planning legislation has also limited the individual's freedom

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6. Young, M. "Some geographical features of the urban fringe" The Southeastern Geographer, vol. II, 1962, 1-6, 1.

of choice to build where he pleases, guiding this activity into the adjacent towns and villages. This makes an investigation of the settlements within and around the Green Belt an essential part of a fringe study at the present time.

Change is the dominant characteristic of the rural-urban fringe. City growth has taken place at varying speeds over the centuries, but has never ceased despite such controls as the city wall, poor transport facilities or war. Any study of the fringe must therefore be recognised as a stage in the development of an urban area.

The general character of the fringe has been noted, as has the area which must be investigated as part of a fringe study. However it is necessary to be much more precise in defining this zone. Where does it begin? Where does it end? These are questions which must be answered if comparative studies of one city throughout its history, or of different cities at the same point in time, are to be made possible.

In order to facilitate this kind of study the inner boundary of the fringe is defined in great detail (see appendix 1). This line can be identified with reasonable accuracy since the distribution of residential areas of the city can be easily observed. The continuity of these areas spreading out from the urban core and surrounding other urban land uses form what may be termed the continuously built-up area. For the purposes of this thesis it was decided that land-uses such as industry, institutions, large houses, parks and recreation areas which had not been engulfed by the urban residential areas would form part of the fringe area. In this way an inner boundary line could be identified outwards from which the rural-urban fringe could be investigated.

The outer boundary however, cannot be so precisely located since

the very nature of the rural-urban fringe, a transitional zone, results in a gradual outward decline of urban orientated land uses. It is therefore necessary to make a very detailed study of all the land-uses around the continuously built-up area in order to determine the extent to which they are linked with the adjacent city. Only after this has been done, taking into account the need for continuity with the urban area or the outer edge of the Green Belt, can the fringe area be defined (see appendix III).

In such an investigation it is imperative that the researcher clearly makes a distinction between the rural-urban fringe and the much more extensive sphere of influence of a city. In both, urban orientation diminishes outwards, but in the case of the rural-urban fringe there is continuity of land-uses and marked urban orientation whereas spheres of influence of a city are far more extensive and decline outwards eventually giving way to the conflicting influences exerted by another urban centre.

Appendix III is an outline of the area, the land uses, and the factors which must be taken into account in delimiting the fringe area around a city in Britain. It is not possible to summarise these in this section, but it must be emphasised that strong links associated with continuity or proximity to a city area must be established if a land use is to be included within that city's rural-urban fringe.

A feature which has not received a great deal of attention with regard to the fringe area is its historical development. It has already been noted in this chapter that cities have expanded at all periods of their existence due to varying social and economic stimuli. The forces and patterns which developed under these different

conditions may be of great significance in the subsequent development of fringe areas around long established cities.

That a rural-urban fringe existed around cities from their creation is evidenced by the fact that "all through history, those who owned or rented land outside the city's walls valued having a place in the country, even if they did not actually perform agricultural labour; a cabin, a cottage, a vine-shaded shelter, built for temporary retreat if not for permanent occupancy. Early city dwellers did not wait for rapid transportation to take advantage of this rural surcease. As long as the city remained relatively compact and self-contained, it was possible to keep a balance between rural and urban occupation, yes and between rural and urban pleasures: eating, drinking, dancing, athletic sports, love making, every manner of relaxation had a special aura of festivity in a verdant sunlit landscape. One of the chief penalties of continued urban growth was that it put this pleasurable setting at such a distance and confined it more and more to the ruling classes.

"In earlier periods ..... new groups and institutions, with larger demands for space than the closely filled-in city could offer, necessarily settled on the outskirts in little suburban enclaves."[7]

Further evidence of fringe development in earlier times is provided by London in the Elizabethan period when the growth of the city outside the wall led to "the first known attempt in this country to establish a green belt, a royal proclamation of Queen Elizabeth I in 1650, forbidding any new building on a site within three miles of the city gates of London. The purposes stated were to ensure an

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7. Mumford, L. "The city in history" Pergamon Books, Middlesex, England, 1961, 550.

abundance of cheap food and to mitigate the effects of an outbreak of plague. A similar proclamation was made by James I and in 1657 the Commonwealth Parliament passed an Act to limit the amount of building within ten miles of London by requiring new houses to have at least 4 acres of land."[8]

Mumford says that "by the time maps and air views of the late medieval cities were made, we find detailed evidence of little huts, cottages, and villas with ample gardens, springing up outside the city's walls. By the sixteenth century the land so used served for more than summer residences and recreation. As early as the thirteenth century, indeed, Villam reported that the land for a circle of three miles around Florence was occupied by rich estates with costly mansions, and Venetian families were not behind in their villas on the Brenta."[9] Early engravings of Edinburgh give evidence of a similar outward spread of urban land uses indicating the presence of an embryonic fringe area.

With regard to Edinburgh a preliminary study of the type of data available showed that if an historical period was to be considered in the thesis, and if such an investigation was to be based on more detailed evidence than that included in a limited map coverage and occasional literary references, it should be confined to the years since 1850. This particular year was chosen because the New Statistical Account of Scotland had been published in 1845 and the Ordnance Survey 5 feet to a mile map of Edinburgh was published in 1853, both of which give quite detailed information on the areas around the city.

The decision to make an historical analysis was taken so that the

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8.Ministry of Housing and Local Government, "The Green Belts", HMSO, London, 1962,2.
9.Mumford, op cit, 551

development of the rural-urban fringe could be traced through three periods which were characterised by differing social and economic forces. During the nineteenth century cities developed as centres serviced by the railway as the main transport medium with roads fulfilling a minor role. The expense of this form of transport imposed quite severe restrictions on personal mobility which in turn limited the extent of urban expansion, but there were no administrative limitations, for as Mumford notes ".... the city from the beginning of the nineteenth century on was treated not as a public institution, but as a private commercial venture to be carved up in any fashion that might increase the turnover and further the rise of land values."[10] This meant that urban growth took place as fast as possible and as justified by local conditions. Edinburgh, as will be shown later in the thesis, illustrated these developments very clearly with the advent of relatively cheap stage-coach fares, the suburban railway, followed by the tramway system, which gave the city a mass transport system for the first time. This meant that the need to travel on foot was no longer the major limitation on the expansion of the built-up area that it had been. However it must be remembered that the vast majority of the population could not afford the high cost of transport, and consequently the urban area was preserved as a compact unit with only a few suburban communities, institutions and recreation areas.

After 1900 the perfecting of the internal combustion engine and its increased use to propel buses, lorries and cars greatly increased the mobility both of people and goods. In Edinburgh, the First

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10. Mumford, op cit, 486.

World War brought urban expansion to a halt: this resulted in an increased demand for houses when the war was over, and the early twenties was in consequence a period of rapid outward spread of the city. Increased mobility came at a time of great social change and upheaval which added to the need for urban expansion. The urban population was growing very rapidly, people were getting married at a younger age, families tended to be smaller, incomes were rising and leisure time increasing. At this period the need for houses was great and the level of incomes high enough to allow many people to purchase their own homes. Increased leisure and greater affluence created a demand for more recreation facilities, and these no longer needed to be sited close to the built-up area. These housing and recreation requirements came at a time when there were no planning restrictions, and resulted in the outward expansion of the city along the main transport routeways. A parallel to this type of growth is found in America, and is recorded by Mumford in his comments on the north-east seaboard of the United States when he says that "Instead of creating the Regional City, the forces that automatically pumped highways and motor cars and real estate developments into the open country have produced the formless exudation. Those who are using verbal magic to turn this conglomeration into an organic entity are fooling themselves. To call the resulting mass Megalopolis, or to suggest that the change in spatial scale, with swift transportation, is itself sufficient to produce a new and better urban form, is to overlook the complex nature of the city. The actual coalescence of urban tissue that is now taken by many sociologists to be a final stage in city development, is not in fact a new sort of city, but an anti-city. As in the concept of anti-matter, the anti-city annihilates the city

whenever it collides with it."[11] Mumford possibly overstates his case, but the amoebic expansion of the inter-war period, resulting from the absence of planning legislation, gave rise, in the case of Edinburgh, to an urban form with extensive projections which have been infilled, but not extended in the succeeding thirty years.

The expansion of the built-up area of cities in Britain during the inter-war period overran large amounts of agricultural land, an estimated annual loss of 3,617 acres between 1927 and 1938 in England and Wales,[12] which aroused public feeling against what appeared to be a wasteful disruption of the agricultural economy. This feeling against uncontrolled urban growth prompted the Government to convene a series of committees to investigate the problem. Sir Raymond Unwin had been commissioned by the Greater London Regional Planning Committee in 1927 to study the land-use problems around London. The Ribbon Development Act and the London pre-war Green Belt Act imposed additional controls. The Scott Committee on Land Utilization in Rural Areas submitted a report in 1942, and Professor Sir Patrick Abercrombie completed his Advisory Plan for Greater London in 1944. These various reports outlined the seriousness of the position and their findings led the Government tn formulate the Town and Country Planning Act, 1947. Under this Act, the Ministry of Housing and Local Government in England and Wales, and the Scottish Development Department in Scotland, were given powers to control all future urban and rural development throughout the contry. This initial legislation has been revised and strengthened by policies such as that on Green Belts, which

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11. Mumford, op. cit., 575
12. Best, R.H. "Competition for land between rural and urban uses" Institute of British Geographers, Special Publication No. 1, November, 1968, 89-100, 93.

have attempted to make the best use possible of the country's land resources. These policies have been very effective in prohibiting further urban sprawl and in doing so have completely altered the character of the rural-urban fringe. The added complication of the Green Belt, an open space into which building is not allowed to spread without severe restriction, has given rise to an agricultural, institutional and recreational area around the city beyond which are many towns and villages which have received overspill from the restricted urban area. In Edinburgh these planning policies have created a built-up area almost completely devoid of ribbon development, around which is a semi-urbanized open space, and beyond this is a scatter of towns and villages which have developed fringe characteristics.

In addition to this outward spread of urban influence there are also the centripetal forces which attract rural land-uses to establish close ties with the city. An example of this process is an established village whose residents find that the local employment opportunities are no longer sufficient to meet demand. The nearby city offers a wide range of alternative forms of employment and some of the villagers become commuters, joining those families who have moved out from the city because of the shortage of suitable houses there.

The movement of agricultural produce into Edinburgh was studied as an additional indication of the city's fringe influence. This investigation was carried out in as much detail as was possible in an attempt to determine as accurately as possible the agricultural area which was heavily dependent on the adjacent urban market. To be completely accurate a farm-by-farm census would be essential, but as this is not available a more generalised parish study was made. In this way an attempt was made to verify the hypothesis that the poor transport facilities found during the nineteenth century would have

resulted in the localisation of agricultural production, especially for bulky and perishable produce such as vegetables and milk; and that this would decrease as factors such as improved rail and road transport, and the advent of national marketing schemes increased the number of outlets available to farmers for marketing their products thus loosening the ties between farm and local urban centre.

In order to establish the extent and content of the rural-urban fringe of Edinburgh since 1850 a study was made at twenty year intervals, based on the 25 inches to the mile maps which were available. The inner fringe boundary was defined and then working outwards from this line the land-use types which make up an urban area were each considered in turn as they occurred around the city since this was the simplest way to handle the complex assemblages of land uses which are to be found in any one area. However, although analysed in isolation the interaction of different elements must be borne in mind, and an attempt will be made to explain many of these inter-relationships as each land use is considered. Residential areas will be subdivided into a series of zones working outwards from the edge of the built-up area: first of all suburban expansion, secondly small hamlets, thirdly the adjacent burghs of Leith, Portobello and Musselburgh, and fourthly the surrounding villages. The remaining land uses, industry, institutions, parks and recreation areas, entertainment facilities and agriculture will be considered one by one. In each instance all available information which indicates the contact which these land uses have with the nearby city will be analyzed, and on the basis of this research the area of the rural-urban fringe will be delimited. In this way a picture of the character, composition and form of the fringe will be given, and the influence of the social and economic conditions which have prevailed during the past one hundred and eighteen years will be evident.

PART I

CHAPTER I

Delimitation of the inner boundary of the rural-urban fringe in 1850

It has already been noted in the introduction that Appendix I comprises a number of premises which may have to be used in the delimitation of the inner fringe boundary. However, in order to examplify the steps which must be followed and the decisions which must be resolved in the location of this boundary, these premises will be applied to the City of Edinburgh in 1850.*

The Palace of Holyrood House lay on the eastern edge of the continuously built-up area of the city, but because of the intervening high wall and the proximity of the Royal Park this large house was in semi-rural surroundings. South west of the palace as far as St. John's Road the houses, gardens and industries of the Canongate formed part of the city, and were bordered to the south by the fields which surrounded the park. At St. Leonard's the "Crackling House" where tallow was refined had, in the 17th century, been banished from the built-up area and had not yet been engulfed, although tenement blocks were now adjacent to it. South of this factory the houses bordered onto the park as far as St. Leonard's railway depot and coal yard. This yard was the terminus of the railway to Newcraighall where much of the coal burned in Edinburgh was mined. The presence of the houses at St.

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* For Edinburgh street index see map packet.

Leonard's and the strict preservation of the Royal Park were the main reasons for the peripheral site chosen for this depot.

Southwards the inner-fringe boundary skirts around the tenements on Parkside Street and then down Dalkeith Road as far as Blacket Avenue which bounded the incomplete Newington residential development. The edge of the built-up area thereafter follows a sinuous course along Blacket Avenue to the backs of the houses on Minto Street, and from there south to East and West Mayfield, separating the continously developed area to the north from a scatter of isolated houses to the south. At Ratcliffe Terrace the villas and terraced houses of this southward urban extension bordered onto agricultural land and as far as Grange Loan, where the initial stages of urban expansion on the south side of the "Meadows" pushed the inner-fringe boundary west around Sciennes.

The city common, known as the "Meadows" or "Hope Park", formed an extensive fringe open space which had restricted the southward growth of the city in this area, but the city had advanced as far as Archer's Hall on the north east side of the park. Adjacent to this and physically separated from the built-up area by it, there was an institutional complex comprising Watson's Hospital, the Merchant Maiden Hospital, Heriot's Hospital, the City Poor House and a small park. This fringe wedge penetrated quite deeply into the heart of the built-up area. Westwards from Heriot's Hospital Lauriston Place formed the inner boundary of the fringe, since lying between it and the "Meadows" were several houses and market gardens.

At Thorny Bank tenements spread west to border upon the fringe industrial area which had gorwn up around the terminus of the Union Canal. Running along Semple Street, Morrison Street, Dewar Place

and Torphichen Street the boundary of the built-up area reached the "New Town".

In this district the pattern of building, in terraced streets, meant that street by street expansion gave a clearly definable limit to the city. In 1850 the boundary followed Atholl Place to Manor Place and then along the north side of Melville Terrace as far as the Water of Leith. At this point the river flows in a deep, steep-sided gorge which had been used as private parks for the adjacent houses, thus forming a wedge of fringe land-uses east of Dean Village. On the north side of the river the edge of the built-up area ran along Dean Street, Eton Terrace, and along the backs of the houses on Lennox Street, leaving the isolated terrace of houses on Clarendon Crescent as part of the fringe. To the north agricultural land bounded the expanding suburb of Stockbridge.

East of the river at Stockbridge, Saxe-Coburg Place and Claremont Street formed an extension of the city, but the adjacent Deaf and Dumb Institute and Edinburgh Academy were in semi-rural locations. To the east, the boundary between city and country was very clearly marked along Fettes Row, Royal Crescent, Broughton Street, and Annandale Street to Leith Walk. Here a ribbon of houses and industry, stretching north towards Leith, formed part of the fringe area. The inner fringe boundary then encompasses the group of houses on the north side of London Road, and swings southwards of the parks, institutions and incomplete terraces which are found on Calton Hill. It then follows the edge of the built-up area along Calton Road to Holyrood Palace.

The built-up area which is enclosed by the inner fringe boundary is very compact; this is in part indicative of the limited extent

to which private transport ownership was to be found. There are a few examples of suburban expansion which constituted part of the rural-urban fringe, but even these developments were located in close proximity to the already existing urban area. The inner boundary of the fringe having been delimited (fig. 3) the area beyond it can then be investigated with reference to its inclusion as part of the city's rural-urban fringe.

PART II

CHAPTER I

The Rural-Urban Fringe of Edinburgh in 1850

The inner boundary of the fringe in 1850 is shown on fig. 3, beyond which is an area of mixed land-uses whose links with the city must be assessed.

Adjacent to the built-up area there were six examples of housing developments stretching outwards along main roads which gave easy access to and from the city. Each of the rows of houses along Inverleith Row, Royal Terrace, Regent Terrace, Grange Road, Bruntsfield Place and Clarendon Crescent formed the initial stages of urban expansion and as such must be included as part of the fringe area.

The Newington district formed an area of partially completed city growth of which only the most southerly portions remained as part of the fringe in 1850. However, the history of this district is an interesting example of planned development giving rise to a fringe residential area as it was built.

In 1808, forty years after the commencement of the "New Town", the area south of Gibbet Loan (now Preston Street) began to be developed. This delay was quite surprising for as Sir Walter Scott pointed out, "When the population of Edinburgh appeared first disposed to burst from the walls within which it had so long been confined, it seemed natural to suppose that the tide would have extended to the south side of Edinburgh and that the New Town would

have occupied the extensive plain on the south side of the College."[1] When Newington was eventually developed its character was carefully safeguarded. "Within seven years from Whit Sunday 1808 or as soon as the whole of Newington belonged to George Bell it had been sold or feued by him. Sir George was then at liberty to dispose of the ground acquired by him for building purposes, conditionally that nothing was done that would spoil the amenities, otherwise the subjects were to revert to Bell. Sir George was not to permit the erection of a distillery or "manufactory of soot or blood", breweries, tanneries, lime or brick kilns were also forbidden, likewise the construction of a steam engine or the setting up of any industry which would be reckoned a nuisance by neighbouring proprietors. A further stipulation was that no dunghill or other article of manure was to be collected for sale on the property except for the improvement of the lands. Finally the porters' lodges were not to be more than one storey, a condition faithfully observed as regards those in Dalkeith Road, but departed from in the case of one on Minto Street which has two storeys. The additional storey may be of a later date. Being private property the gates at both sides of Blacket Avenue were locked at night as was Mayfield Terrace."[2] These stringent conditions were very influential in creating a high class residential district. The demand for houses was great especially along the new thoroughfare, Minto Street, south to Mayfield Terrace. By 1850 the only section still to be developed was that to the south of Blacket Avenue where several houses formed part of the

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1. Grant, J. "Old and new Edinburgh", 3 vols. Cassell, Pelter and Galpin and Co., London, c. 1880, vol. 3, 50.
2. Forbes-Grey, W. "Lands of Newington and their owners", Book of the Old Edinburgh Club, vol. 24, 1942, 152-198, 163.

fringe. "Throughout the by no means inconsiderable chapter of its (Newington) history it was closely identified with the merchant class. Only to a limited extent has it attracted the professions, the members of which have chosen to dwell either north or west of Princes Street. Newington has been and still is (1914) pre-eminently the habitation of the prosperous business man."[3]

Two other suburban residential areas had also begun to emerge by 1850. To the south of the city, on the Biggar Road, lay the village of Morningside, a small community which had begun to expand during the second quarter of the nineteenth century. The village had been chiefly dependent on agriculture for its existence, but along with the neighbouring weaving settlement of Tipperlinn, it had long been a favourite holiday resort for summer visitors from Edinburgh. The attractiveness of the area, with its gentle slopes and southerly aspect, did not go unnoticed and after 1800 it became an exceptionally dignified residential district with many large mansion houses, the homes of the wealthy merchant and professional classes. Houses such as Falcon Hall, East Morningside House, Clinton House and The Elms came to dominate the area along with the more modest yet quite large villas along Churchhill, Newbattle Terrace and Jordan Lane. Together with the more crowded artisan houses on Morningside Road these homes gave rise to an impressive residential suburb almost completely devoid of industry.

The other suburban district was located to the north of Edinburgh at Trinity and Newhaven. The extensive flat lands formed by the raised beaches had proved ideal for the establishment at

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3. Ibid., 191.

Trinity of several large estates with a few mansion houses, whose owners had leased land to the brewers in the city for growing barley or to numerous market gardeners who grew vegetables for the nearby urban population. These activities were still much in evidence in 1850, but had been joined by another which was soon to dominate the area. With the opening of the railway to Edinburgh in 1846 and the good road access, the district became fashionable as a place for prosperous city people to live in, and as a result rows of villas began to appear. Writing in 1877 W. Ballingall noted that "... it forms one of the greatest and most agreeable places of residence I have the pleasure of knowing. The dwellings in this particular quarter of the city are almost all of the wealthy and more affluent class, many of them retired merchants and W.S.'s from the city, with a goodly sprinkling of rich and genteel families from many other places and countries." [4]

With the reconstruction of the old chain pier to accommodate ferry boats and steamboats at various stages of the tide the village of Newhaven was brought into greater contact with Edinburgh. It already supplied much of the fish consumed by the nearby urban population. The new pier was utilized for steamship traffic between Edinburgh and London, and daily ferry boat services between Newhaven and Aberdeen, Burntisland, Kirkcaldy and Dysart. The mail from Aberdeen and the east coast crossed by ferry to Newhaven and stage-coaches ran from Edinburgh every day to form a connection with the arrival or departure of the different steamboats. Throughout most of the first half of the nineteenth century it was the busiest and

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4. Ballingall, W. "Edinburgh past and present" Constable, Edinburgh, 1877, 94.

most important ferry and packet station in Scotland, a role which was almost exclusively due to its proximity to Edinburgh. This forged strong residential and functional links between Trinity and Newhaven and the adjacent city.

The village of Granton was located on the shores of the Firth of Forth immediately outside the city boundary. Despite this proximity however, in the early part of the nineteenth century it was described as a "Hamlet of rather humble buildings built by the Duke of Buccleuch for the accommodation of his working people; whilst to the east again, there is a village of cottages of a much better class and two storeys high, which are likewise tenanted by the employees of the harbour."[5] With the completion of the harbour in 1845 as the terminus of the ferry to Burntisland and the arrival of the railway in 1846 there was a great increase in Granton's interaction with Edinburgh making it part of the city's fringe area.

Other examples of fringe housing areas were a ring of small villages or hamlets located close to the built-up area, but not continuous with it (fig. 3).

Abbeyhill, situated to the east of Calton Hill, had grown up around the breweries established in the area and its semi-rural position had been preserved by the incomplete development of the Calton district.

On the south east side of the city at Blacket Avenue lay the village of Rosehall. This small group of houses had not been engulfed by the expansion of the built-up area in 1850 and still retained its rural character, as was noted by W. Forbes-Grey who

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5. Ibid., 92

wrote that it was ".... formerly known as Gushet, located on the east side of Dalkeith Road extending from Salisbury Green to Prestonfield Road. Forming a triangle it consisted of a number of cottages and at its northern extremity one or two plain but commodious villas, which can still be seen. A quiet hamlet with literary, scientific and agricultural tastes according to those who know it of old."[6]

A short distance south of the Newington residential area were two similar villages, Echobank and Powburn. Little is known of either of these except that there were around seventy houses in the former and that "Powburn, when the Home family owned it, was a favourite summer resort for town dwellers despite the proximity of Reid's tannery where a large number of people were employed."[7] Unfortunately the size of the labour force of the tannery was not given, but if it was as large as was implied then the neighbouring villages and Edinburgh would have had to supplement the limited number of people living in Powburn. The surrounding agricultural area and the adjacent city no doubt also played important roles as sources of employment for the remainder of the people in both of these villages.

West of Edinburgh on the road to Corstorphine lay the village of Roseburn which had grown up as a fording place and milling centre on the Water of Leith. The proximity of the city provided an outlet for the produce of the mills and the attractiveness of this district had led a few families to leave Edinburgh and live there.

At greater distances from the city there were several other villages namely Duddingston, Newcraighall, Liberton, Colinton, Juniper

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6. Forbes-Grey, op. cit., 182
7. Ibid., 191.

Green, Davidson's Mains, Corstorphine and Cramond, all of which were to a certain extent connected with Edinburgh. However only the first mentioned, Duddingston, formed part of the fringe area in 1850. The others were more remote and had flourishing local industries which still preserved the independence of these settlements.

Duddingston was located on the south eastern flanks of Arthur's Seat, a small cluster of houses in picturesque surroundings separated from the city by the Royal Park which formed a large recreational area. The lengthy journey round the perimeter of the park which was necessary for wheeled transport meant that, despite its proximity to the city, the residents were mainly estate workers, farm workers and a few prosperous families who could afford the inconvenience of the lengthy coach ride into town. On the other hand literary sources indicate that a pleasant walk through the park broughtEdinburgh people into the village as "Duddingston was a great resort of old time Edinburgh citizens; it boasts one ancient tavern "The Sheep's Heid" to wit, renowned for its preparation of that peculiarly Scots dish and the citizens who took a dander on the hills in the summer or threw the curling stones on the loch in winter, would refresh themselves there after their playful toil."[8] In 1845 the parish minister wrote "The loch is much frequented by the citizens of Edinburgh for the favourite amusement of skating, when the season permits."[9] And in 1874 R. L. Stevenson also made reference to the skaters on Duddingston Loch.

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8. Watt, F. "Edinburgh and the Lothians", Methuen, London, 1921, 137
9. The New Statistical Account of Edinburghshire, Wm. Blackwood & Sons, Edinburgh, MDCCXLVI, 382.

Due to the fact that public transport facilities were poorly developed the majority of the people working in Edinburgh were forced to live in or very close to the built-up area. Only the well-to-do could afford the expense of personal transport which would allow them to live some distance from the city they worked in. In an attempt to determine the areal extent of this outward movement of residence it was decided that a study of large mansion houses around Edinburgh should be made, since these houses would be the ones most likely to be occupied by wealthy citizens. A comprehensive list of these residences was compiled from the 1853, 5 feet to the mile map of the area (fig. 4); then making use of the Valuation Rolls for 1855* it was possible to establish the occupation and place of work of the people living in these houses. Unfortunately this information is not given in every instance, but despite this drawback it was felt that fig. 5 which was compiled from this source does indicate the outward spread of Edinburgh's dormitory fringe. Of the one hundred and three houses investigated the occupation of the owner or tenant of seventy-eight could be determined, and of these, sixteen, mainly bankers, lawyers, accountants, university professors and industrialists, worked in the city. The houses fulfilling a dormitory role formed only a small proportion of the total number of mansion houses in the area, but as can be seen on fig. 5 they are, as would be expected, those houses which are adjacent to the built-up area. Transport was still a problem even for the wealthy, and few as a result were willing to move far from the city, and all lived in houses located close to major roads which made access easier. These houses were to be found

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* The first year for which the Valuation Rolls were compiled.

in the attractive areas of Duddingston, Prestonfield and Davidson's Mains.

The location of industrial premises was also greatly influenced by the limited personal mobility of the period (see fig. 6). Only those industries requiring special facilities or excluded from the city because of their character were not to be found within or beside working class housing districts. The actual sites chosen for industrial suburbs were to a large extent governed by the availability of transport facilities, either road, canal or railway.

There were, in 1850, some long-established industrial premises situated on the outskirts of the built-up area which had not been located there because of any inherent advantages of these locations. On the east side of Leith Walk, adjacent to the city, there were several breweries on the main road to Leith. At Abbeyhill, as has already been mentioned, there were several breweries which had their origins in the traditional ties this industry had with the Holyrood area. The "Crackling House" at St. Leonards was located there after having been expelled, at an earlier date, from the built-up area. In this factory tallow was refined for making candles, and the smell emitted had resulted in these works being the subject of an Act of Parliament in 1621 which resolved "that the candlemakers provide themselves of houses for melting their tallow and crackling at some remote parts of the town from the common streets, closes and vennels of the same."[10] Reid's tannery at Powburn is another example of a noisome manufactory located outwith the city and making use of a

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10. Smith, J., and Paton, H.M. "St. Leonards lands and hospital" The Book of the Old Edinburgh Club, Vol. 23, 1940, 111-147, 141.

local burn for processing purposes.

Water, used either for power or for processing, was of great importance to industry during the early nineteenth century and this resulted in a concentration of mills and factories along the Water of Leith. The presence of such a large number of these establishments alongthe river was largely due to the proximity of the nearby urban market and the export and import facilities available at Leith. Consequently Slateford with its bleaching greens and laundries, Gorgie with its corn mills, flour mills and tanneries, Bells Mills and Dean Village with their flour mills and tanneries, Canonmills with a complex of mills, maltings, distilleries, oil works, gas works and cooperages, Bonnington Mills and the port of Leith with its great variety of industries - all played a vital role in the trade and prosperity of Edinburgh. In fact many of these works had formerly been located within the city, but had moved out; for example, the Tannery at Bells Mills had done so in the middle of the seventeenth century. This factory, situated in the deep gorge formed by the Water of Leith, is the oldest established fleshmongery on the river and possesses a Royal Charter granted to the Incorporation of Skinners and Tanners by Charles II giving the firm the right to unlimited use of water from the Water of Leith in recognition of their removal from the Nor' Loch. This charter puts an obligation on the burgh to dispose of the large amounts of effluent created by the processing of the hides, a factor of considerable importance in the re-location of the tannery.

In 1792 an acute shortage of coal had led to the proposal for a canal as a means of transporting from West Lothian some of the fuel required by the city. Plans were drawn up for possible routes with their respective termini at Bruntsfield Links, Leith Docks,

North Bridge, or the one which was finally chosen, Gilmore Place. After some initial difficulties which followed the withdrawal of support by those merchants dissatisfied with the terminus chosen, the canal was begun in 1808. The promoters had great faith in its success for it was felt that "such an undertaking must of course be of great advantage to the inhabitants of Edinburgh and the differant districts through which it is intended to pass." [11] Port Hopetoun was the name given to the Edinburgh terminus when the canal was opened in 1822 and it was connected by horsebus with Princes Street for passengers travelling to Glasgow by boat. Within a few years of its opening a distillery and a rope works were the first of many industries to locate adjacent to the terminus of the canal. Nevertheless it was said that in 1840 Fountainbridge "... belonged to the country rather than the city and had adjoining it fields and pleasure grounds and a 'grove', the site of which is still fixed by local nomenclature."[12] The peace and quiet of the district had been rudely awakened by the industries established after the opening of the canal, but many of these were still situated in semi-rural surroundings. A further set back to the amenity of the district resulted from the location there of the new slaughterhouse. "At one time the Edinburgh 'shambles' was situated on the south bank of the Nor' Loch. Then when the site was taken over by the railway a period of anarchy supervened and every butcher killed where he pleased. For a time there were nearly eighty slaughterhouses scattered throughout the city. This intolerable state of matters was brought to an end in 1850 when a municipal

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11. "Ceremony at the commencement of the Union Canal betwixt Edinburgh and Falkirk, March 3rd, 1808" as reported in "The Scotsman", March 4th, 1808.
12. Geddie, J. "Romantic Edinburgh", Sands and Co., London, 1900, 210.

slaughterhouse was established at Fountainbridge."[13].

The era of the canal was cut short by the coming of the railway. It was the increasing demand for coal, as had been the case with the canal, which had led to the formation of the first railway company to operate in the city. In 1825 the well known "Innocent Railway" operated by the Edinburgh and Dalkeith Railway Company, was opened. The line, which ran from St. Leonards to Newcraighall, with a branch line to Dalhousie, soon overcame some initial difficulties and established itself as a viable economic concern. However, due to the fact that it, like the lines to follow, could not easily penetrate into the centre of the built-up area, the goods yard and coal depot were located on the edge of the Royal Park at St. Leonards.

It was a few years later that the larger railway companies opened their lines, into Edinburgh and the termini of these soon emerged as the foci of industrial districts. Meadowbank was a small settlement situated midway between Edinburgh and Portobello, which had come into being during the 1840's as a working class suburb near the unsightly and unsavoury meadows of Craigentinny. To this low amenity area was added the St. Margaret's locomotive works of the North British Railway Company, and at a later date the loading bay where the city refuse was loaded onto trains for disposal elsewhere. Together these functions resulted in the emergence of a working class industrial district which because of its unattractive character was established some distance from the built-up area. The opening of the Edinburgh to Glasgow railway line in 1842 led to another industrial area which clustered around its terminus at Haymarket, consisting of a cabinet works, flour mill, brewery and coal depot.

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13. Institute of Public Administration, "Studies in the Development of Edinburgh", W. Hodge and Co. Ltd., Edinburgh 1939, 13.

The additional impetus given by the new railway line which entered the city through Gorgie and Dalry created, along with the industrial establishments at Fountainbridge and Haymarket, an industrial complex which was to expand rapidly during the second half of the nineteenth century.

The late eighteenth and early nineteenth centuries had been a period of institutional expansion in Edinburgh with the construction of several very imposing structures to house hospitals, sanatoria and schools. However, as central Edinburgh had been almost completely built over these could not be located within the urban area, and so, as would be expected at a time when personal mobility was severely restricted, most of these new institutions were established close to the edge of the built-up area (Figs. 7 and 8). A few had been subsequently surrounded by urban expansion, but many still remained amidst extensive open spaces or in rural surroundings.

On the north side of the Meadows there was a large group of institutions. This comprised the City Poorhouse, Heriot's Hospital, Watson's Hospital and Merchant Maiden Hospital. The last three were not hospitals in the modern sense of the word, but were schools for the children of city merchants, deceased city merchants, the poor and others who fulfilled special social requirements. Gillespie's Hospital at Brunsfield, another school, the Deaf and Dumb Institute, Edinburgh Academy at Stockbridge and the Royal High School on Calton Hill formed part of the city's fringe area.

On the south of the city, quite some distance from the built-up area, there were several other institutions. These included the Convent of St. Catherine of Sienna at Sciennes, established in the sixteenth century, which had long been renowned as an educational and medical centre, the Royal Blind Asylum at Newington which had moved out to this rural area from Nicholson Street shortly after 1770

to escape from the crowded city; and at Morningside there was the Edinburgh Lunatic Asylum, an unattractive institution which had been forced to leave the city.

By far the most striking institutional complex was to be found at Dean, to the west of Edinburgh. In 1847 these impressive schools were commented on by the Rev. Thomas Guthrie in a pamphlet "A plea for ragged schools: or prevention better than cure". "On approaching Edinburgh from the West after the general features which distance presents, dome and spire and antique piles of buildings, the castle standing in the foreground, while Arthur's Seat raises its lion back between the city and the sea, the first object which attracts the eye of a stranger is a structure of exquisite and surpassing beauty. It might be a palace for a queen, it is a hospital (Donaldson's). Nearby embowered in a wood stands an edifice of less pretensions, but also of great extent, it is another hospital (John Watson's). Within a bowshot of that again some five open towers rise from the wood over a fair structure, with its Grecian pillars and graceful portico; it is another hospital (Dean Orphanage)."[14] These were joined by another imposing building which housed Daniel Stewart's hospital.

Also forming part of the fringe area was the city prison on Calton Hill, a strong fortress-like building, located on an easily guarded lava outcrop which dropped precipitously on its western side. This site was very satisfactory since it allowed maximum security measures to be upheld, was close to the city, but not so near that its low amenity value would give rise to objections on the locating of this

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14. Anderson, J., "History of Edinburgh", A. Fullerton and Co., Edinburgh and London, 1856, 521.

type of building there.

The city regiment played an important role in the life of Edinburgh during this period. Up until 1796 the barracks had been in the castle, but due to pressure from lack of space and the desire to improve accommodation the Piershill Barracks were built to the east of the city. Adjacent to these quarters was a small parade ground, but for more lavish ceremonial occasions either the parade ground at Holyrood Palace or the cavalry park at Duddingston were used (fig. 9).

Parks and recreation areas did not play as important a role in the lives of Edinburgh people in 1850 as they do at the present time, a fact which was reflected in the relative paucity of these facilities (fig. 10). The city was almost devoid of open space and only with the building of the New Town did parks come to form an important aspect of the townscape. However, despite the fact that quite extensive areas of open space were found in this area, only those flanking the Dean Gorge still formed part of the fringe area at this time. The longest-established open space was located on the south side of the city. Called the Meadows this area of common land was formerly a poorly drained area, and its reclamation had taken place during the eighteenth century. This open space was continuous with Bruntsfield Links which were used by many Edinburgh people for playing golf, and had, along with the adjacent Warrender estate, been used by the Royal Highland and Agricultural Society of Scotland for an exhibition of livestock and implements held in 1842. Leith Links formed another common which was freely accessible to the citizens of both Leith and Edinburgh, and had the dual role of park and golf course. There were also several bowling greens located around the edge of the built-up area. The Royal Park was, however,

the most extensive open space adjacent to the city. This large hilly area was the property of the Crown but had been used for many years as a recreation area and was opened in 1846 as a public park. The only other fringe-area park was the Calton Hill, part of which was open to the public, although part was retained as a private park for the residents of Regent Terrace and Royal Terrace.

Playing fields were almost completely absent (fig. 10) apart from those associated with Merchiston Castle School.

The Botanical Gardens (fig. 11) served both as an educational and recreational area. These gardens had originally been located in the vicinity of Holyrood Palace, but due to lack of space had been forced to seek a temporary home in the grounds of Trinity Hospital between Edinburgh and Leith and later in West Leith before a permanent site was found for them at Inverleith in 1821. The small zoological park at Canonmills formed another educational and recreational land use.

As can be seen on table 7 the increasing size of Edinburgh's population necessitated the provision of more cemeteries. To meet this demand six new burial grounds were established in 1846 (fig. 10). They were located in peripheral sites due to their space requirements. Along with the older burial grounds on the flanks of Calton Hill they formed a ring of cemeteries around the city.

The only remaining settlements which have to be considered with reference to the city's fringe area are the Burghs of Leith, Portobello and Musselburgh.

A link between Edinburgh and Leith was forged at an early date when Robert the Bruce granted the harbour and Mills of Leith to the City of Edinburgh in 1329 for the payment of 52 merks per year. The conditions laid down in this charter were: "No Leither could become a

partner in an Edinburgh Merchant firm.

No strangers (thus including Leithers) could store goods at the harbour.
Leith merchants could not trade with Edinburgh merchants
Leith merchants could not transport goods within Edinburgh.
All goods imported had to be broughtup to the tolbooth and sold there."[15]

For the following 500 years these regulations were strictly adhered to and effectively kept Leith under Edinburgh's control. This was partially lifted in 1826 when an Act of Parliament was passed which transferred the management of the port to a body of twenty-one commissioners of whom nine were Edinburgh people, six were citizens of Leith, three were from Trinity House, and three from the Admiralty. As A Campbell recounts ".... in the place of the docks being sold to a parcel of joint stock jobbers, they, as well as the conducting of great improvements in the harbour, now projected, are placed under the management of a commission equally appointed by Edinburgh and Leith."[16] This was a recognition of the interdependence of the two towns which had developed during the years when Edinburgh controlled the affairs of the port.

In 1850 Leith had a population of almost 40,000, most of whom lived on the south side of the Water of Leith. Leith Walk, the main thoroughfare between the two towns naturally emerged as a line of early development. The development of public transport along this road gives a further indication of the amount of interaction which existed between them. The first passenger coach appeared in 1610 and was well patronised especially by people embarking for London, Newcastle, Berwick, Greenock and many other ports, as well as by people going to Leith Links to play

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15. Charters and Documents relating to the City of Edinburgh, 1143-1540. Printed for the Lord Provost and Magistrates and Council, Edinburgh, 1870, 16.
16. Campbell, A. "History of Leith", W. Reid & Son, Edinburgh, 1827, 268.

"the gowf" or for social visits to the town. By 1836 there was an hourly service along Leith Walk and as demand grew this rose to one every ten minutes by 1869. The coming of the railway in 1849 added a new competitive form of transport, but only after the Edinburgh Street Tramway Company opened its line down Leith Walk in 1871 did the stage coach cease to run. Transport was required both for goods and for passengers, the latter going to Leith to catch the various boats which called there, and for recreation, work and entertainment. Moray McLaren, writing about the 1860's notes that "there was only one music hall-cum-theatre; though sing-songs of a fairly free nature used to take place in pubs and in semi-licensed halls. There were a few side shows after the nature of our modern pin-table saloons and a fair or two. But pleasure was mostly confined to drinking, singing, midnight gatherings for carousal and of course venery. Ladies of the town, amateur as well as professional, abounded; for the East of Scotland people have always been highly physically amorous. Not only were the streets thronged with those seeking and selling bodily pleasures, but there were houses of ill fame which advertised their purpose quite openly."[17] These were the haunts of R. L. Stevenson and many others who wanted to escape from the respectability of the city.

There is no statistical evidence of the numbers of people moving daily from Leith to Edinburgh, but the multiplication of coach services indicated that this was an important feature especially as many Leith firms were owned by City merchants.

The interrelationship of the two burghs grew stronger throughout the nineteenth century, so much so that in 1877 it was reported that

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17. McLaren, M. "Stevenson and Edinburgh", Chapman and Hall, 1950, 96.

"It (Leith) is a town of great importance with a population of upwards of 50,000 and a sea port with a trade and dock accommodation the third in the kingdom (Scotland). Originally and for a long time after its existence it remained quite apart, having no connection whatsoever with any of the neighbouring districts. Now, however, it may naturally be regarded as a suburb of Edinburgh, as physically they meet at several points and municipally are in certain things interdependent. Still although thus closely connected with the city and housing many interests in common it yet preserves its own integrity as a town having its own peculiar manners, usages, independent feeling and municipal institutions."[18] Moray McLaren also found evidence of suburbanization in his research into the Edinburgh of the 1860's. That Leith should maintain its own individuality does not detract from its close interactions with Edinburgh and its fringe classification. A measure of this feeling of town identity was shown in 1920 when a plebiscite was taken on the proposed amalgamation with the city. This was at a time when the built-up areas of the two towns were completely integrated yet the proposal was defeated by 29,891 votes to 5,357.

On the shore of the Firth of Forth east of the city lay the Burgh of Portobello, a comparatively young town which had been established to provide bricks for the building of the New Town during the last half of the eighteenth century. Till that time the mouth of the Figgate Burn had been little more than a wasteland of scrub and blown sand devoid of any settlement save an inn for travellers on the road to London. It was only when the clay in the area was found to be suitable for brick making that the settlement came into existence. "At first the greater part of the buildings erected in this neighbourhood

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18. Ballingall, op. cit. 95.

were chiefly for the working men connected with the brick works, but after the erection of Mr. Jameson's* handsome dwelling house it seems to have occurred to some Edinburgh people that the locality was not without its attractions as a summer resort for their families."[19] The expansion of the brick works, the introduction of a flax mill on the Figgate Burn and the opening of a bottle works gave rise to a rapid increase in the population from around 300 in 1800 to 1,900 in 1821 and 3,497 in 1851. With the decline in the demand for bricks Portobello's increased popularity was reflected in the number of land sale advertisements which appeared in the Edinburgh newspapers at the time of the opening of the public baths at Portobello in 1804. So great was the demand for transport between the two burghs that in 1806 a stage coach service was established at a cost of 10d. per journey plus a 2d. tip for the driver. "This brought it within the easy reach of the capital, though at a rather high price, and a considerable stream of visitors flowed into the place, though doubtless limited to what we would call the 'upper class'."[20] The town rapidly emerged as a holiday resort, making full use of the extensive shelving beach, the mineral springs and hot and cold baths. The coach continued to be the main form of transport to and from the neighbouring city until the middle of the nineteenth century and had become so popular that the company were able to operate a more frequent service and reduce the fares charged. This enabled more and more people to take advantage of the facilities to be found in the town. The chief function of the burgh was noted by the Parish minister who wrote that

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* The owner of the Brickworks

19 Baird, W. F.S.A. Scot "Annals of Duddingston and Portobello", Andrew Elliot, Edinburgh, 1898, 296.

20 Ibid., 319.

"Portobello from the salubrity of the air and its delightful situation very soon became a place of great resort for sea bathing quarters not only for families from Edinburgh, but also from the surrounding country and has increased in size every year."[21] When the North British Railway Company opened its line through the burgh to Edinburgh in 1846 access was greatly improved and the facilities at Portobello were used by a far larger section of the capital's population. Because of these close links Portobello may justifiably be included within Edinburgh's fringe area.

In contrast the Burgh of Musselburgh remained independent of Edinburgh. This town had grown up as a route centre, fishing port, manufacturing and service centre at the lowest bridge point on the River Esk. The local fishwives were a common sight in the streets of the city, vegetables grown on the rich soils around the town were also sold in the city's market, and the race course and golf course in Musselburgh attracted a few people from the capital. However, despite this interaction, Musselburgh was too distant and too industrially independent in 1850 to form part of Edinburgh's fringe area.

The distribution of market gardens shown on fig. 12 indicates that inadequate transport facilities necessitated the cultivation of the majority of perishable foodstuffs close to the potential market. Because of this a large number of market gardens are found around Edinburgh especially on the flat land and friable soils of the raised beaches between the city and Leith.

Other intensively cultivated areas were the irrigation meadows

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21. New Statistical Account of Edinburghshire, op.cit., 392.

whose characteristics were noted by T. Farrell. "At Craigentinny between Edinburgh and the sea are the most extensive meadows in Scotland, being about 200 acres, all of which have been under regular irrigation with sewage for upwards of 30 years. A large variety of seeds was put in at the outset, the principal being Italian Rye grass. Most of the sown grasses have disappeared long ago, but in their place have gradually sprung up an abundance of natural grasses which now form a close thick sole. The produce is sold each year, chiefly to cowfeeders at £16 to £28 per acre and one year reached £44. The crop is cut five times in the season from the beginning of April to the end of October. The annual proceeds of the farm which is in the hands of Mr. Christie, the owner, amount to between £3,000 and £4,000, the expenditure being the wages paid to two men for keeping the ditches in proper order. The grass produced per acre is estimated at 50-70 tons.

A little nearer the city are the Lochend meadows tenanted by Mr. Scott, Duddingston. They are laid out on the ditch system which involves a little more expense, but still they pay well. In all they extend to about 80 acres most of which is in grass, but on an arable plot of twelve acres potatoes are sometimes grown, the land being sown with Italian Rye grass after their removal, which comes in for cutting before winter. The second crop brings about £5 per acre. The permanent grass has averaged during nine springs £27-125 per acre, prices ranging from £20 to £45 according to crop and demand."22. These areas (fig. 12) showed a particular

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22. Farrell, T., "On the agriculture of the counties of Edinburgh and Linlithgow", Transactions of the Highland and Agricultural Society of Scotland, 4th series, vol IX, 1877, 1-66, 35.

adaptation to the proximity of the city and met the fodder requirements of many of the dairies located within the built-up area.

In the absence of any statistical information about the agricultural economy of the area around Edinburgh in 1850 it has been necessary to base the investigation of this topic on written records, in particular the New Statistical Account of Scotland, published in 1845.

Agricultural activities received very little attention from the minister of the parish of Edinburgh, but he did draw attention to the insanitary character of the sewage meadows at Lochend and Craigentinny.

A further indication of the way in which proximity to the city had influenced the adjacent agricultural area was given in the parish of Duddingston by the work carried out by Dick of Prestonfield. When he became Lord Provost he undertook to clean the streets of manure. It was removed to his estate and with it he was able to improve the fertility of the land. Other land owners were quick to see the benefits which accrued from using this city waste and Edinburgh found this to be a profitable outlet for this insanitary accumulation.

To the south of the city Liberton also felt Edinburgh's influence in many ways, but the one of greatest concern to the parish minister was the gravitation to this district of many of the city's undesirable elements, such as rowdies, beggars and thieves, who lowered the tone of the local society. In contrast to these adverse influences, however, the presence of the nearby market meant that potatoes were the principal crop grown there. A two-way trade developed between the farms and the city: potatoes were taken in to the market and cart loads of manure at 5/- each were carried out and applied to the land in liberal quantities of between 30 and 50 cart loads per acre. This fertilization was a major factor in the production of the

superior quality potatoes much sought after by the people in Edinburgh.

The parish of Inveresk, at the mouth of the Esk, according to its minister had "long been distinguished for the excellence of its gardens. Besides those belonging to private families, there is a considerable extent of ground in the immediate vicinity of the town (Musselburgh) occupied as "Mail Gardens" as they are called, the produce of which is sold in the Edinburgh and Glasgow markets..... Formerly small fortunes were realized by the market gardeners there, chiefly by the sale of flowers, at present many most respectable individuals prosper in the same profession, edibles being, however, their chief source of profit."[23] This long-established market gardening tradition to supply the Edinburgh market can still be seen in this district.

Colinton parish, as early as 1849, was a place of residence for a few wealthy Edinburgh people and a summer resort for many more. Agriculturally the parish was very similar to Liberton, for as the minister noted "Potatoes form the greatest breadth of green crops for which Edinburgh affords a near and ready market, while it also yields the principal supply of manure at about 4/- per ton, exclusive of toll and carriage."[24] The large amounts of manure available enabled farmers to apply 24-32 tons per acre of green crops thus greatly increasing their yields.

The availability of fertilizer was also the basis of Currie's agricultural prosperity. "The manure in use besides the ordinary stable produce consists of guano, compost of lime or the police dung of Edinburgh which is carried by (Union) canal boats at 8/- per ton."[25]

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23. The New Statistical Account of Edinburghshire, Wm. Blackwood & Sons, Edinburgh and London, 1845, 290
24. Ibid, 123
25. Ibid., 544.

The large quantities of potatoes grown, and the milk from the local dairy herds, were both destined for the Edinburgh market.

The written account for the parish of Kirknewton records that "On many of the farms the dairy is the principal and on some the exclusive object; and there are few on which this species of industry is not carried on to a greater or lesser extent. The produce is carried to Edinburgh, where it finds a ready market."[26]

Ratho also felt the pull of the nearby market for the main crops in the parish were potatoes and turnips. The former were sent to Edinburgh and the latter fed to cattle during the winter months. The minister emphasised the fact that the city was the nearest outlet for agricultural produce and that manure could be easily procured from Edinburgh by the Canal: this was an important factor in improving the fertility of the soil. One consequence of this was that green crops had increased in importance in the parish.

The minister of Corstorphine parish remarked that "like other ecclesiastical stations it (the village) is surrounded by rich plots of garden ground, which have long been in a high state of cultivation. Part of this ground is let at £8 per acre and on it great quantities of fruit, strawberries and vegetables are produced for the Edinburgh market."[27] However not all of the parish was so well endowed, since according to the same source many changes and improvements had been made to the land. "Part of the ground formerly occupied by (Corstorphine) Loch became a common which was not divided until the middle of the last (i.e. eighteenth) century, and then for many years afterwards the whole meadows produced only natural grass which

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26. Ibid., 444
27. Ibid., 221

was partly pastured by the villagers and the rest let to tenants who sold the grass for the dairies in Edinburgh." [28]

Little specific information was provided about the agricultural economy of the parish of Cramond, but it was noted that the crop rotation necessitated large amounts of manure being applied to the land, and this almost certainly was purchased in Edinburgh. The main crops were potatoes, turnips and beans which would undoubtedly have found their way to the city market.

With regard to the parish of Kirkliston, it was recorded that "the use of the various approved manures is now very common and is producing a marked improvement in the value of the soil, such as rape cake, bone dust, soot and the common manures from Edinburgh."[29]

Although no mention was made of produce being sent to the city the fact that manure could be transported out from there would seem to indicate that potatoes and dairy produce could move in the other direction.

The parish minister of Newton made no specific reference to any agricultural links between the parish and Edinburgh. His account, however, does suggest that there was a considerable movement by road and rail between the two areas, and it is probable that agricultural produce as well as people was involved in this.

Dalkeith Parish on the other hand, produced vegetables for the local mining communities, and had little reason to trade with Edinburgh.

No mention was made of agricultural interchange between Lasswade or Penicuik and the city, but both were said to be popular as summer

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28. Ibid., 245
29. Ibid., 143

resorts for holidaymakers from the capital.

The minister of Dalmeny makes no mention of any agricultural interchange with Edinburgh.

On the basis of the foregoing analyses it is possible to make an approximate delimitation of the rural-urban fringe around Edinburgh (fig. 13). This zone of urban orientated land-uses can be further subdivided into an area of land uses which have spread outward from the city which are surrounded by agriculture both of the intensive and extensive type, and into a far wider area which displays purely agricultural orientation towards the city (fig. 13). The inner zone covers a very limited area due not only to the poor transport facilities available in the middle of the nineteenth century which restricted commuting, the movement of industrial materials and travel for recreation, but also to the fact that the compact built-up area resulted in limited fringe development as the city expanded and thus spread was naturally most intense close to the city. The same transport problem encouraged agriculture to market locally especially for perishable and bulky produce such as vegetables, potatoes and milk. Consequently a wide belt of market-orientated agricultural land is to be found around the city. Several towns and villages in the vicinity of Edinburgh were located within this wider area, but they do not exhibit strong links with the city, and are therefore not regarded as constituting a part of the fringe. This is the main reason for distinguishing between these two sub-types of fringe, the inner consisting of an almost total inward orientation, and the outer agriculturally linked, but containing many independent settlements

and institutions.

The composition of the fringe area so defined reflects quite clearly the prevailing social and economic conditions of the time. Suburban development for middle and upper class families had begun to emerge, but was limited in its distance from the built-up area by the poor transport facilities available. On the other hand, the growing demand for both villas and terraced houses, with gardens, had necessitated expansion into the most suitable areas outside the crowded confines of the built-up area. The districts to the south and north fulfilled the requirements of accessibility, flat ground and attractive surroundings and consequently were developed quite rapidly as residential fingers extending out into the surrounding countryside. However, apart from Rosehall and Duddingston the adjacent villages were as yet too remote to act as recipients of city workers. On the other hand there were several small communities very close to the urban area which had emerged as industrial centres; these owed their existence largely to the proximity of the urban market. The majority of these settlements had grown up along the valley of the Water of Leith to the west and north of Edinburgh making use of the river either as a source of power or for processing purposes. These villages were located close to the city except for Slateford where the bleaching and laundry industries, which required a plentiful supply of water, were situated. In addition to these river-orientated communities Abbeyhill, Echobank and Powburn had also developed strong industrial links with the nearby city. However, despite their proximity, commuting was not of major importance in these settlements since working class people could not afford the time or money to travel into the city, and the industrial character of these villages impaired their attractiveness

as residential communities for more wealthy families. Consequently only those settlements very close to Edinburgh, Abbeyhill, Echobank, Powburn, Dean and Canonmills displayed residential links in addition to functional dependence on the city.

Leith and Portobello were larger residential and industrial towns which had, over the years, been drawn into such close interaction with Edinburgh that they had come to form part of the city's fringe area. Leith, Edinburgh's port, located at the mouth of the Water of Leith, formed a very compact settlement which was slowly expanding south along both the river and the road towards the northern outskirts of Edinburgh. Portobello, on the other hand was physically much more distinct from the city, but because of its attractive coastal situation it had emerged as a holiday and residential town with a very close relationship with Edinburgh.

The place of employment of the occupants of the mansion houses around the city provided evidence of the presence of a commuter belt which was as yet of limited areal extent being confined to the area within the immediate neighbourhood of the built-up area.

The importance of the Water of Leith in the location of certain industrial premises resulted in a much more extensive zone of fringe factories than would otherwise have been expected during this period. As has already been noted the river was the main reason for the ribbon of industrial enterprises between Leith and Slateford and all of these were closely associated with the adjacent city. Lack of space within Edinburgh resulted in several industries locating on the periphery of the built-up area. The importance of transport as a locational factor for the industries was indicated by the concentration of factories around the canal termini, and beside the railway stations

at Haymarket and Meadowbank, whereas road transport was largely responsible for those at Abbeyhill and on Leith Walk.

Institutions located outside the built-up area fall into two categories, those established in close proximity to it in order to provide easy access to and from the city, and those located further afield either to secure suitable sites or because of their special character. Distance from the city was in no case greater than two or three miles due to the need for easy, but not necessarily daily contact. On the north side of Edinburgh these institutions had dispersed locations, but to the west a group of four serving a similar function had come into being, a feature which became increasingly common with regard to institutional establishments.

Recreation areas, both parks and playingfields were severely restricted in their distribution. In addition, since the benefits of these land uses had not been fully realised they were few in number. In 1846 when it became essential to increase the provision of cemetery space, locations one half to one mile distant from the built-up area were chosen. Consequently a ring of six burial grounds encompassed the city and were still in rural surroundings in 1850.

These land uses form what has been termed the "inner fringe zone", a zone characterised by the presence of land uses which are essentially urban in origin. The residential component was the most rapidly expanding, but even this was limited by poor transport facilities which meant that most expansion took place in suburban development advancing on a broad front with few examples of fringe extensions. The adjacent villages had begun to show signs of the outward movement of people from Edinburgh, but this was confined to those settlements within one or two miles of the built-up area. The large towns of Leith and Portobello were growing very rapidly at

this time and because of their strong links with Edinburgh extended its fringe area to the shores of the Firth of Forth to the north and east of the city.

Within this zone of marked urban expansion the agricultural economy was also influenced by the adjacent urban area. Numerous market gardens and nursery gardens occupied the flat raised beaches to the north of Edinburgh, while scattered gardens were to be found all around the city. To the north east of Edinburgh in the area between Leith and Portobello were the irrigation meadows of Craigentinny and Lochend which utilized liquid sewage from the city. In addition to the inner zone of intensive cultivation certain districts such as Granton, Corstorphine, Liberton and Inveresk were renowned for their vegetable produce, most of which was destined for the city markets.

Farm cultivation in general also strongly reflected the influence of the nearby urban market especially for bulky and perishable products. As a result dairy farming showed a marked concentration around the city as did potato cultivation. This outer zone of agricultural activity for the Edinburgh market encompassed an area within six miles of the city centre.

PART I

CHAPTER 2

Urban growth between 1850 and 1875

The inner boundary of the fringe in 1875 has been delimited on fig. 15, and when compared with that defined in 1850 gives an indication of the amount of expansion which had taken place in the preceding twenty-five years (fig. 14).

Dumbiedykes and St. Leonard's underwent rapid tenement development during the 1860's as the demand for working class homes close to the city centre increased, infilling of the remaining open space on the west side of the Royal Park. Dalkeith Road continued to form the south eastern limit of the built-up area, but to the west as soon as the Newington residential district was fully developed, construction began on the agricultural land to the south. "In 1863 Mayfield, Rosebank and Powburn were sold to Duncan McLaren of Newington House for £16,000. Soon after, the ex Lord Provost of Edinburgh began feuing these properties. At McLaren's death the lands of Mayfield were almost wholly built-over. Until the early 1870's the lower portion of Mayfield Gardens was still a country road bounded by low stone walls beyond which stretched farming land as far as Mayfield Toll."[1]

On the north side of the Meadows the lands of Lauriston were

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1. Forbes-Grey, W. "Lands of Newington and their owners." The Book of the Old Edinburgh Club, Vol. 24, 1942, 152-198, 190.

drawn into the urban area soon after 1850 as tenements spread south to the park. The scatter of houses on the south side of this open space was gradually infilled so that by 1875 it was noted that "that has happened, which Sir Walter Scott wondered had not by natural law come to pass in his day, as he watched a growth which then set mainly to the north; a 'New Town has occupied the extensive plain on the south side of the College', and has long overpassed the wide bounds of the Burgh Muir. In the Grange district especially town and country intermingle, and the region is one of parks and gardens and villa residences."[2] As more and more houses were built much of this district was drawn into the urban area and finally in the early 1870's the large undeveloped area comprising the lands of Warrender and the Meadows was enclosed by the houses built along Strathearn Road, Hope Terrace and Blackford Road which linked Morningside and Grange. Within a few years Grange Cemetery had also been surrounded. The Warrender estate remained intact for several years, but the pressures exerted by the adjacent city were great and the area was feued during the 1880's.

The Bruntsfield district had begun to show signs of expansion in 1850, and with further development houses surrounded Gillespie's Hospital and Merchiston Castle School reaching west to Ettrick Road.

Morningside also continued to expand and had by 1875 become a large residential suburb. Throughout the third quarter of the nineteenth century this community grew steadily infilling the areas between the more open villa development of the previous era, incorported several formerly isolated streets and the adjacent village of Tipperlinn.

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2. Geddie, J. "Romantic Edinburgh", Sands and Co., London, 1900, 189.

In the ten years between 1850 and 1860 Abbotsford Place and Abbotsford Crescent in the north were begun, as were Chamberlain Road and Greenhill Park. This effectively linked up with the house building that had taken place south of Bruntsfield Place and the isolated Greenhill Gardens, drawing Morningside into the urban area. Other existing streets in Morningside, Churchhill and Newbattle Terrace, were completed and linked up with the houses built along Pitsligo Road, Albert Terrace, Morningside Place, Morningside Park and Springvalley Gardens to form a large southward extension of the city.

The industrial complex at Fountainbridge had increased considerably since 1850, creating a great demand for both workers and houses. Built by private speculators tenement houses were located indiscriminately on any vacant site, with no thought for amenity. With the completion of the houses on Rosemount Street and Grove Street by 1865 and those on Dundee Street by 1872, and in addition the tenements constructed on the south side of Dalry Road during the same period, the majority of the industrial premises adjacent to the Union Canal were drawn into the urban area.

The New Town expanded very slowly during this period with the construction of houses along Manor Place and Palmerston Place, becoming continuous with Grosvenor Street, Grosvenor Crescent and Rosebery Crescent by 1875.

On the north side of the Water of Leith Clarendon Crescent ceased to form part of the fringe in 1860 with the completion of Lennox Street, while to the west Belgrave Crescent and Buckingham Terrace were developed between 1855 and 1870.

Comely Bank district was unchanged as far east as Stockbridge; beyond this, however, the houses on Glenogle Road occupied the remaining open land on the south side of the Water of Leith. By 1873 the industrial

and tenement developments had been completed on the south side of Henderson Road and on Pitt Street.

Between Broughton Street and Holyrood House there had been little urban growth, apart from the houses built on Hope Crescent which formed an urban projection northwards along Leith Walk.

The expansion of the built-up area was quite rapid during this period especially in those residential districts favoured by more affluent members of the community. This was only to be expected since they could afford the cost and time of a lengthy journey to work in the city centre. Most of this growth took place over the gently sloping districts of Newington, Morningside and Merchiston where villas and terraced houses with large gardens and an open southerly aspect were built along wide streets. In contrast to this rapid growth the New Town with its formal terraces expanded very slowly.

Working class families could not afford to buy their own homes and also wanted to live very close to their place of work. Consequently although the demand for houses was great and the number of houses built was large, the speculative builders crowded these people into tenement streets which threaded between already existing industrial premises, giving rise to the compact and densely populated districts of Dumbiedykes, Fountainbridge and Dalry. The fact that they surrounded factory sites, especially those adjacent to the Union Canal, resulted in the formation of quite extensive mixed housing and industrial districts typical of nineteenth century urban expansion. However, the striking feature of the built-up area in 1875 was its compactness, a fact which can be attributed to the social demand for a close knit urban society in an era before personal mobility was available to all citizens.

PART II

CHAPTER 2

The rural-urban fringe of Edinburgh in 1875

In the twenty-five years between 1850 and 1875 the city of Edinburgh expanded quite rapidly, especially towards the south west, and this necessitated a re-adjustment of the inner boundary of the fringe to the line delimited on fig. 14.

Stretching out along the main roads from the built-up area there were several ribbons of houses, the most extensive being along Inverleith Row, Royal Terrace, Regent Terrace, Craigmillar Park and Wester Coates (Fig. 15). These houses were located either in rural or extensive open areas, the roads giving the people living in these houses access to and from the city. The northward expansion of Inverleith Row had reached as far as Goldenacre where a group of houses had been built around Granton Railway Station, which would seem to indicate that the availability of rail transport was of considerable importance to people choosing to live in this suburban community. The Calton Hill area had been fully developed, but the adjacent parks and farm land preserved it as part of the fringe area. In the Newington district houses had reached south to the city boundary which appeared to contain expansion, apart from an incomplete ribbon of houses along the main road to Liberton. West of Haymarket the New Town had overstepped the adjacent agricultural land and surrounded the

grounds of Donaldson's Hospital to secure the open aspect offered by these grounds, an attribute still enjoyed by these houses to the present day.

The development of the area north to the city had brought Morningside into the urban area leaving the group of large houses on the south side of Dick Place and Whitehouse Terrace as part of the fringe along with the row of villas along Jordan Lane. The built-up area had also spread west over Bruntsfield as far as Ettrick Road, beyond which lay an area of incomplete villa development.

Trinity, which had emerged as a suburban district in 1850, had been increasingly developed. Newhaven village and the area to the south had been largely occupied with well ordered streets of villas and terraced houses reflecting the attractiveness and accessibility of this area for many people who worked in Edinburgh. The port of Newhaven continued to be an important fishing centre with most of the fish landed there being sold in the adjacent city. Granton village on the other hand, was little changed, but Wardie Village to the east with its rows of villas and elegantly built houses had begun to show evidence of becoming a dormitory suburb, as more and more houses were built there.

North of London Road a new suburban district, laid out with a well ordered street pattern modelled on the classical simplicity of the adjacent New Town, had begun to be developed. However, before this was completed Edinburgh had been linked to the national railway network, and in response to the demand for goods yard facilities in the 1860's it was decided that this area should be used for this purpose, since it was the only suitable site in the northern part of the city. However, instead of re-aligning the planned street lines to accommodate this new land use the goods yard was simply superimposed on the existing plan, resulting in the peculiar street orientation of this residential area.

Adjacent to the built-up area there were several small villages

which still preserved their individuality. Abbeyhill had grown quite rapidly since 1850 with the erection of large tenement blocks on both sides of London Road. The construction of these houses had been necessary to accommodate the increasing number of people employed in the local breweries and in the railway workshops at Meadowbank. The growing need for houses in this district was also reflected in the emergence of another fringe tenement complex at Comely Green. The other small communities at Rosehall, Echobank, Powburn and Roseburn remained much the same as they had been in 1850, except that urban growth had almost reached out to them by 1875.

Improving transport facilities had brought other villages in the neighbourhood of Edinburgh within reach of those wealthy citizens who wanted to live in rural districts. The influx of these people, many of whom continued to work in the city, brought several of these villages into the rural-urban fringe. These villages, if they were to attract people out from Edinburgh, had to be easily accessible by road or rail, scenically beautiful, quiet and without obnoxious industry, characteristics displayed by Duddingston, Liberton, Colinton and Cramond.

The Royal Park isolated Duddingston from the city and in addition preserved the beauty and solitude of the village, making it an attractive place of residence for a few Edinburgh people, as was indicated by the Valuation Rolls which listed a lawyer, a university professor and two doctors among its residents, the other people living in the village being estate workers and farm labourers.

On the crest of the hill overlooking Edinburgh from the south lay the village of Liberton, a predominantly agricultural community clustered around a church and inn. The city was not far distant, and was within easy reach for those people with personal transport. In 1867 however,

an investigation of the employment information available in the Valuation Rolls revealed little evidence of a dormitory element in the local population, but this situation had changed by 1875 when five out of the fourteen people whose employments were recorded would have had to travel into Edinburgh to work. In addition to these professional people, 2 doctors, 2 lawyers and 1 chartered accountant, there were two retired professional workers living in the village.

At a ford and bridge point across the Water of Leith some four and a half miles south west of the city lay Colinton Village, a small community almost hidden on the floor of the steep sided, tree covered, valley. The village had, however, long been a favourite place of residence for a few people working in Edinburgh as indicated in the "Statistical Account of Scotland" written in 1792. "The number of inhabitants (in Colinton) has, of course been considerably augmented, and is at present upon the increase, from the enlargement of the Metropolis."[1] The attractiveness of the village continued to act as a magnet, in 1845[2] it was noted that there were several renowned people living in the parish and working in the city: they were Dr. Alex Munro and Professor J. D. Forbes of the University of Edinburgh, Sir W. Forbes, banker and J. Gillespie, tobacconist.* The parish was also a popular holiday resort for visitors from the city. In 1867 the Valuation Rolls indicated that there was only a very small commuter element in the village population, but by 1875, when Colinton's population had risen to 400, almost one third of the forty people whose employment was recorded could not have worked

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1. Sinclair, Sir J. "Statistical Account of Scotland" Vol. 19, Collington, Wm. Creech, Edinburgh, 1792, 580.
2. The New Statistical Account of Edinburghshire, Wm. Blackwood & Sons, Edinburgh, 1845, 114-115.

* J. Gillespie, a prominent businessman, was the benefactor of Gillespie's Hospital at Bruntsfield.

locally.[3] As was the case in Liberton professional people formed the majority of this group, but there were also several clerks and civil servants. This evidence points to an increasing residential link with Edinburgh, which was given further impetus by the opening of the branch railway line through Colinton to Balerno in 1874. The small number of shops in the village would also seem to indicate that the nearby city acted as an important retail centre for the people living in the village.

On the eastern bank of the River Almond where it enters the Forth, some five miles west of the city, lay the village of Cramond. This settlement, which comprised a small group of cottages, a church and an inn, had grown up at a point where ferry boats crossed the river, the mouth of which also provided a safe anchorage for small boats. A study made of the 1867 Valuation Rolls brought to light an interesting characteristic of the village, for two of the cottages were tenanted by people who also owned houses in Edinburgh. In 1875 this number had risen to six and in addition four other cottages had occupants who would have had to travel into the city to work.* This holiday function is of great significance since the houses were leased for periods of between seventeen and nineteen years[4]. Also the fact that these people also owned houses in the city would seem to indicate that they were not only used as summer residences, but could be visited throughout the year. The scenic beauty of the village, its quietness and access both to the river and the sea were no doubt important factors in its emergence as a holiday centre, outweighing the disadvantages of poor local shopping facilities and remoteness from Edinburgh.

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3. Valuation Roll, Midlothian, 1875
4. Ibid., 3
* 1 Architect, 1 Lawyer, 1 Accountant, 1 Banker.

An investigation of the adjacent mansion houses in 1867 showed that of the 112 located employment information was not available for nineteen. Of the remainder, twenty had occupants who worked in Edinburgh and these, as can be seen on fig. 16 were almost all concentrated within four miles of the city centre.

In 1875, as is shown on fig. 17, of the one hundred and twelve houses studied the employments of 70 of the occupants were recorded in the Valuation Rolls and of these thirty were noted as working in Edinburgh or had occupations they could only follow there. The distribution of these mansions continued to show a concentration close to the built-up area, but there were ten located more than four miles from the city. The Water of Leith, by virtue of its attractiveness and the improved access to the city, provided by both the road and the newly opened railway to Balerno, displayed a marked concentration of large houses occupied by people who worked in Edinburgh. Liberton and Cramond were two other areas which had also emerged as attractive places for people from Edinburgh to live.

The outward growth of working class residential areas at Fountainbridge had resulted in the incorporation within the built-up area of many industrial premises formerly located in semi-rural surroundings. As a result the breweries at Holyrood and Abbeyhill, the tannery at Newington and the factories on Leith Walk along with the industrial premises on the Water of Leith and those clustered around peripheral railway yards were the only examples of fringe-industries still to be found. The banks of the Water of Leith formed a prominent ribbon of mills and factories with concentrations at Colinton, Slateford, Gorgie, Dean, Canonmills, Bonnington and Leith, industrial complexes with little or no local market, which meant that most of their produce was sent into Edinburgh. The railway network had also emerged as an important influence in the location

of industrial establishments. There was a goodsyard and coal depot at St. Leonard's, a flourmill and distillery at Haymarket and a locomotive works and goodsyard at Meadowbank; two new concentrations had come into being, a goodsyard, ironfoundry and bakery at Hawkhill, and a goodsyard on the east side of Leith Walk.

Granton harbour had emerged as an important industrial site with a fish processing plant, sawmills and storage facilities.

The great demand for building stone in the city meant that the ring of quarries already noted in 1850 continued to be of great importance.

The outward growth of the city between 1850 and 1875 had surrounded several of the older institutions. Those still outwith, but very close to the built-up area (Figs. 19 and 20) included the prison and Royal High School on Calton Hill, the Royal Blind Asylum at Newington, the Edinburgh Lunatic Asylum at Morningside, the institutional grouping at Dean, and the Deaf and Dumb Institute and Edinburgh Academy at Stockbridge. Two new hospitals had been established at a greater distance from the city, the City Poor House at Comely Bank in 1867 and the Portobello Combination Hospital. These institutions along with the newly founded Fettes College (1870) at Inverleith, the Piershill Barracks and the military training areas at Holyrood and Duddingston (Fig. 21) formed an outer ring of fringe institutions.

The amenity and recreational benefits which accrue from parks and open spaces had not yet been fully recognised, since despite Edinburgh's expansion only one new park, that at Learmonth, had been established. Situated adjacent to the New Town on the north side of the Water of Leith, this new park along with those of Leith Links, Calton Hill, the Royal Park and the Dean Gorge were the only surviving fringe parks, (Fig. 22). However, other open spaces came into being as sports grounds belonging to several private schools, Edinburgh Academy, Daniel Stewart's College

and Fettes College, occupying large areas were laid out to the north of the city. A private athletic ground had also come into being at Powderhall in 1875. Portobello Park was established during this period, being laid out on the south side of the main east coast railway line, because of the lack of space on the sea front.

The ring of suburban cemeteries which had been established in 1846 had been encroached upon by the expanding city, but all, except that at Grange which had been completely surrounded, remained as part of the fringe (Fig. 22).

The Royal Botanical Gardens and a small zoo at Broughton were the only entertainment land-uses found around the city in 1875.

The acquisition of a large area of land on the east side of Leith Walk by several railway companies, reduced the acreage of market gardens to approximately one quarter of that found in 1850. However, this loss was more than offset by the doubling of the market gardening acreage in the Trinity, Granton and Comely Bank districts (Fig. 24). At Craigentinny and Lochend the sewage meadows were still extensively cultivated, producing very large quantities of fodder for the dairies in Edinburgh. Proximity to the city was also the main reason for the large nursery garden which had been established by Dickson and Co. at Craigmillar. This garden provided plants and seeds which were initially for sale in Edinburgh only, but as production increased and transport facilities improved marketing took place on a national scale.

The Burgh of Leith underwent considerable expansion after 1850, several new industrial premises being located along the Water of Leith and to the south of the burgh, while houses had been built along Ferry Road as far west as Newhaven Road. The extensive westward growth of the town contrasted very markedly with the limited development which had taken

place to the east where Leith Links acted as a barrier to expansion. The concentration of houses, commercial premises and industrial enterprises along Leith Walk was evidence of the growing interchange and interaction between Edinburgh and its port. Transportation links continued to improve with the opening of the Edinburgh Street Tramway Company's tram service to Leith in 1871. This allowed workers to commute easily between the two towns and gave Edinburgh people access to the port where merchandise was landed and passenger boats left for many ports around the British Isles. The tram service also enabled people from the city to take advantage of the recreational and entertainment facilities to be found in Leith and naturally catered for a reciprocal movement of Leith people into Edinburgh. This economic and social intercourse had developed to such a degree that in 1877 W. Ballingall[5] referred to Leith as a suburb of Edinburgh, a conclusion which was echoed by M. McLaren[6] writing about Edinburgh during R. L. Stevenson's youth, 1850-1870. These accounts taken in conjunction with the evidence of transport, recreational and social links between the two towns supports the conclusion that Leith had become closely linked with Edinburgh and formed an integral part of the latter's fringe area.

Portobello also grew rapidly during this period despite the fall in local employment opportunities which resulted from the decline in the demand for bricks as the New Town neared completion. The burgh population had grown to 4,366 in 1861 and 5,481 in 1871, mainly due to the increased numbers of people working in Edinburgh. The attractiveness of Portobello as a residential suburb and holiday resort was such that a single line horse tram service, with passing loops, was opened from the city in 1875.

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5. Ballingall, W. "Edinburgh past and present" Constable, Edinburgh, 1877, 95.
6. McLaren, M. "Stevenson and Edinburgh" Chapman & Hall, London, 1950.

The stage coaches which had been operating on this route since 1806 had not only to face competition from the tram, but also from the North British Railway Co. which had reduced its fares between Waverley (Edinburgh) and Portobello by a penny and had increased its service to twelve trains each day.[7] In 1876 this competition became too great for the stage coaches and the service was withdrawn. The fact that the service to Portobello was the first in the city to be operated by horse tram was indicative of the need for regular and rapid transport to and from Portobello. In 1871 the opening of the pier helped to establish the burgh as a Victorian playground; located between Bath Street and Regent Street it ran out to sea for a distance of 1,250 ft. As part of the town's resort function steamers were operated from the pier; there was also a small theatre, a camera obscura and numerous tea rooms on the pier. However, Portobello had not only developed as a holiday and weekend resort by 1875 but had also emerged as a dormitory town for people working in nearby Edinburgh.

However, despite this evidence of the outward spread of urban land uses especially the increasing number of people commuting into the city, several adjacent villages remained relatively uninfluenced. The coal mining communities of Newcraighall to the east of Edinburgh, and Gilmerton to the south, although sending most of their coal output into Edinburgh had little other contact with the adjacent city. The employment information which can be gleaned from the Valuation Rolls for 1875 showed that of the 700 people living in Newcraighall and the 705 people in Gilmerton almost the entire working population were employed in the local

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7. Baird, W. "Annals of Duddingston and Portobello", Andrew Elliot, Edinburgh 1898.

mines, local farms or in the village shops. These records give no evidence at all of any commuter movement into Edinburgh to work. In addition the comprehensive range of shops and services recorded in the Valuation Rolls was indicative of the extent to which these settlements were self-sufficient.

With the opening of the railway to Balerno along the valley of the Water of Leith, in 1875, access to this very attractive district was made much easier. The immediate effect was to increase the number of visitors to the area, but according to the Valuation Rolls the villages of Juniper Green, Currie and Balerno did not appear to display any dormitory characteristics in 1875.

The village of Corstorphine situated to the west of Edinburgh was a small self-sufficient community of 600 inhabitants clustered around the church and coaching inn, and surrounded by an area of very rich agricultural land. There was little evidence of any commuter travel into the city in the 1867 Valuation Rolls and eight years later this element still comprised only a very small minority of the village labour force. Distance and the absence of cheap transport into the city were the main reasons for Corstorphine's continued independence.

This was also found to be the case in Davidson's Mains located on the road to Queensferry to the north west of Edinburgh. Apart from the role as a summer resort, a feature it had in common with all the villages close to the city, this agricultural community appeared to have little contact with Edinburgh apart from the latter's role as the regional market centre.

The collection and publication of the Parish Agricultural Returns each year after 1866 greatly facilitates any investigation of the economic orientation of agriculture of the area around Edinburgh. In an attempt.

to trace the development of agricultural activities in this area an analysis was made of these statistics at ten year intervals from their introduction. This involved calculating the total cultivated area, all arable land and rotation grasses; the percentage of this total under each constituent crop was then computed. The area studied included all of the County of Midlothian and the adjacent parts of West Lothian and East Lothian, an extensive area within which Edinburgh's market influence would be clearly shown, if this was in fact of any importance. A series of maps of the crop and animal distributions most likely to illustrate the effect of a nearby urban area were then drawn on the basis of this information.

In order to arrive at meaningful categories which could be used to represent this data on the maps, a dispersal graph was constructed for each of the crops to facilitate the identification of those parishes with common characteristics. The distribution of dairy cows was considered to be of great significance since this would reflect the extent to which the production of milk was concentrated in the parishes around the city. However, the number of milk cows alone gives no indication of the relative importance of dairying in the local farm economy and in an attempt to establish this more clearly a second map showing milk cows as a proportion of all cattle was compiled.

In 1866 (Fig. 26) the importance of the dairies within the built-up area was shown by the fact that in St. Cuthberts, North Leith and South Leith there was an overwhelming proportion of milk cows to total cattle. This marked urban concentration was further emphasised by the importance of the suburban parishes of Duddingston, Liberton and Corstorphine and the more distant parishes of Glencorse, Currie and Mid-Calder. The only other parish with a significant dairy cow concentration

was Dalkeith where the local mining population provided a large local market.

The imposition of more stringent sanitary laws in the late 1860's, following the rinderpest plague in Edinburgh, resulted in an increase in the importance of the suburban dairy farm, St. Cuthbert's, North Leith, South Leith and Liberton formed a marked nucleus with a wide ring of suburban parishes around them. The mining parishes of Dalkeith, Livingston and Lasswade were also prominent milk producing districts, but mainly for their local market.

Writing in 1877 T. Farrell commented on the part played by the suburban dairy farms when he wrote that "in the city of Edinburgh it (dairying) has fallen off slightly, but has been fully compensated for by the extra number of stock kept specially in the county to supply the requirements of the town. Previous to the rinderpest year, the number of cattle in Edinburgh was stated at 2,100 or 2,200, but the grievous plague claimed many as its victims, and the original quantity was never fully made up. The Cattle Sheds Act, too reduced the numbers to some extent ..... many sheds were condemned and the county thus came in for a larger share of the town's business. Had the town's cattle increased with the requirements of the population in place of falling off they would now have doubtless numbered close upon 4,000. Most of the produce of these cattle is sold as sweet milk. There are also dairies in the suburbs constructed on much the same principle as those in the city. In summer the cows are fed upon grass obtained from the irrigation meadows together with breweries grain, bran and meal; in winter they have hay and turnips, bean meal and straw..... It is computed that a half of the milk required in Edinburgh is obtained from city dairies, the remainder is drawn from the county or in some instances where far distant

by rail."[8] Farrell then listed some of the more important dairy farms which sent their milk to Edinburgh and these, which have been plotted on Fig. 28, give a rough indication of the extent of the city's milk shed. The parishes of Currie and Penicuik are mentioned as being very well suited to dairy farming especially as Edinburgh is so close at hand.

The potato crop is another good indication of market orientation since it formed a very important constituent of the diet of people during the nineteenth century, and being very bulky the potatoes could not be transported over great distances.

The advantages of potato cultivation close to the city were clearly illustrated by the concentration found in the parishes of Corstorphine, Colinton, Duddingston and Newton in 1866, (Fig. 26), and adjacent to these Cramond, St. Cuthbert's, Liberton and Inveresk also had a significant proportion of their cultivated area under potatoes. Together these parishes formed a very marked grouping centred on the city of Edinburgh.

Ten years later as can be seen on Fig. 27 this pattern of potato growing was still to be found, but two new parishes had increased considerably in importance. These were the two East Lothian parishes of Tranent and Gladsmuir, both located in areas with ideal soil and climatic conditions for potato cultivation. However, although some of this potato crop found its way onto the Edinburgh market the large quantities grown would seem to point to a far wider market in Scotland and Northern England.

Pig keeping is often associated with urban areas because of the large

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8. Farrell, T. "On the agriculture of the counties of Edinburgh and Linlithgow" Transactions of the Highland and Agricultural Society of Scotland, 4th Series, Vol. IX, 1877, 1-66, 35.

quantities and very great variety of waste food which are produced there. However, as Fig. 26 shows there was little sign of any such concentration in 1866, for the numbers of pigs in the area as a whole were very low. Only St. Cuthbert's, which was almost completely built-over, Currie and Liberton had over 600 pigs. In 1877 (Fig. 27) the large number of pigs in the urban area continued for St. Cuthbert's had over 1,300 pigs, but there was evidence that the suburban parishes of Cramond, Corstorphine and Liberton were growing in importance.

The Parish Agricultural Returns gave no record of the acreage under market garden cultivation in 1866 only listing certain crops such as carrots, cabbages, beans and peas, and giving no indication of whether or not they were being grown for human consumption. The map of these crops (Fig. 26) does not necessarily denote urban orientation. However in 1877 market gardens were included as a separate category, and as can be seen on Fig. 27 the largely built over parishes of Edinburgh and Leith showed the greatest concentration of activity along with the very small parish of Prestonpans; Dalkieth was the only other parish with an important market garden acreage and this parish along with Prestonpans provided vegetables for the local mining communities. The importance of vegetable and fruit growing was noted by T. Farrell who wrote that the county of Edinburgh "exceeds all other counties in market gardens, there being 775 acres under cultivation. Most of the produce is consumed in the city of Edinburgh. It consists chiefly of early potatoes, cabbage, turnips, strawberries etc. for which there is always a ready demand."[9] Corstorphine received special mention as a parish with well

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9. Ibid., 54.

cultivated gardens which supplied produce for the Edinburgh market.

Nursery gardens, thosesspecialising in flowers, plants and shrubs, were included within the Parish Agricultural Returns for the first time in 1877. These gardens depend very heavily on a large population concentration where their products are in greatest demand. Consequently as is indicated on Fig. 27, there were a large number of small nursery gardens adjacent to the urban area of Edinburgh, especially on the raised beaches of Trinity, North Leith, South Leith, St. Cuthbert's and Liberton.

The importance of Edinburgh as a market for all types of agricultural produce was reflected in the value of land rentals, as was established by R. Richardson in 1878. On this subject he wrote that "as to the rental of land the accompanying agricultural map of the county (Fig. 29) shows how much it varies according to the nature of the soil and the favourable position of the farm - farms becoming more and more highly rented as the metropolis is approached. In the immediate vicinity of the city of Edinburgh land acquires an extraordinary and artificial value from the following causes - 1. Highly rented fields are leased to city butchers for cattle grazing. 2. By means of irrigation with city sewage, lands such as those of Craigentinny, have acquired a fabulous value. 3. Vegetable market gardens and nurseries occupy considerable proportions of highly rented ground near the city. 4. Competition with builders of the suburbs of Edinburgh, a city which has been rapidly increasing of late years, has given an artificial value to the land immediately surrounding the city. At the same time there is no doubt that the soil in the vicinity of the metropolis is very favourable to agriculture when scientifically pursued; and that as compared with most other places in the county and indeed Scotland the city of Edinburgh enjoys a drier climate, a most important consideration to the farmer."[10]

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10. Richardson, R. "The county of Edinburgh, its geology, agriculture and meteorology" Unclassified Pamphlets, Edinburgh University Library, No. P. 432/6, 1878, 35 pages, 24.

In 1875 the rural-urban fringe of Edinburgh was characterised by a limited zone of quite intensively urbanized land around the urban area beyond which there was an extensive area where the spread of city land uses was less apparent, but with strong agricultural links with the nearby urban market.

This pattern was very similar to the fringe area defined in 1850, the main changes having resulted from increased urbanization in the area around the city. The compact built-up area had begun to show signs of expansion since in addition to the developments in several old established villages adjacent to the urban area numerous short ribbons of houses had been built along almost all of the main roads leading out from Edinburgh. The older suburban districts also continued to expand during this period.

A feature of the fringe which became increasingly important was the emergence of several of the more attractive rural villages in the surrounding area as dormitory settlements.

This outward spread and increased intensification of the city's residential influence over the adjacent districts was not simply restricted to the villages, but was also clearly illustrated by the growing number of mansion houses that were occupied by people who worked in Edinburgh.

In contrast to this expansion, however, industrial inertia and the need to locate factories within easy reach of their labour force meant that very few industrial premises were to be found beyond the inner boundary of the fringe.

Institutions followed a similar pattern to that found in 1850, forming a ring in close proximity to the urban area with only a few isolated establishments all of which were located within two miles of the city centre.

Parks and recreation facilities were still of minor importance as

urban fringe land-uses and although they were increasing in number they tended to be located close to the city. Cemeteries on the other hand continued to be found in a ring some distance from the built-up area.

Consequently in 1875 the inner zone of the rural-urban fringe reached northwest to Cramond, south to Colinton and Liberton and east to Portobello. An area of marked commuter travel into Edinburgh, but one within which a belt about a mile wide around the built-up area was by far the most intensively urbanized.

Intensive agriculture was also an important feature of this inner fringe area. Further afield, however, in addition to the occasional urban land use market garden cultivation, milk production, pig keeping and potato growing formed the basic products of an extensive area within which the farm economies were conditioned by the needs of the adjacent urban market. The limits of this outer zone were similar to those identified in 1850.

PART I

CHAPTER 3

Urban growth between 1875 and 1895

As fig. 31 shows Edinburgh and Leith had become one continuous urban area by 1895, linked first of all by the expansion which took place along Leith Walk, the main transport artery between them. This physical continuity was made much more complete with the construction of houses along Montgomery Street, South Elgin Street and Thomas Street by 1885, on the remaining open space within Edinburgh to the south of the railway goods yard. Abbeyhill and Easter Road were also joined together by urban growth at this time. The eastward spread of houses towards Abbeyhill eventually surrounded Calton Hill with its terraces, parks and institutions, drawing them into the city; this was also the case at Holyrood where the tenements built along Spring Gardens, Milton Street and Waverley Park during the 1880's encircled the breweries established there at an earlier date.

The Royal Park restricted the eastward expansion of the city with the result that between Comely Green to Rosehall village, the outer limit of the built-up area remained the same as that found in 1875. Rosehall, however, had begun to be developed as a residential area in 1885 with the construction of houses along Marchhall Road, Kilmaurs Road and Dalkeith Road, but because these streets ran parallel to the urban area this development could not be classified

as part of the fringe.

With the completion of McLaren Road and Ventnor Terrace in 1881 the city had expanded south to the administrative boundary which meant that until the Extension Act of 1882 (fig. 2) the houses beyond what was later to become the line followed by the suburban railway were part of the fringe area. However, with the opening of the railway in 1884 residential expansion was very rapid, indicating that transport into the city was required before this quite distant suburb could be extended. The time table operated by the railway points to the importance of commuter travel "The first train on the outer circle passes (Newington) at 7.21 a.m. and is timed at that hour from two points of view, first, to give suitable service for parties travelling to business, and second, to form connections at Haymarket and Waverley with a group of trains leaving between 7 and 8 o'clock for the north and west."[1]

The absence of a main thoroughfare into the city may account for the slow expansion of the Grange district as a residential suburb, relative to Mayfield and Morningside, which were on either side of it. This area comprised a mixture of villas, terraced streets and agricultural land giving rise to a street pattern characterised by many open spaces, that were built on at a later date. Consequently Fountainhall Road, St. Albans Road, Findhorn Place and Lauder Road had all been under development for twenty-five years prior to 1895.

As was the case in Newington, Morningside had advanced south to the city boundary by 1880, after which there were several years of inactivity until the Boundary Extension Act of 1882 and the added

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1. Waugh, A.A. "The Edinburgh suburban and southside junction railway", The Railway Magazine, Vol. 25, 1909, 372-377.

impetus given by the opening of the suburban railway in 1884. R. L. Stevenson aptly described the renewed activity when he wrote that "just beyond the old toll house at the foot of Morningside Road the chisels are tinkling on a neat row of houses. The builders have at length advanced beyond the toll which had held them in respect for so long and proceed to canter in fresh pastures like a herd of colts let loose."[2] Cluny Gardens, Morningside Drive and Craiglea Drive were all begun in 1882 and by 1895 this district had become part of the urban area.

Merchiston continued to expand as a residential suburb with the rapid infilling of the scattered villa development west of Ettrick Road and renewed building along Spylaw Road, Colinton Road and Polwarth Terrace.

On the north side of the Union Canal tenements had spread along Gibson Terrace, Murdoch Terrace and Yeaman Place by 1877, joining up with the houses being built on Dundee Terrace, Bryson Place and Watson Crescent. Meanwhile, a fringe tenement area was being developed at Shaftesbury Place and this remained isolated until 1892 when it was reached by the advancing city. These tenements were erected to house those working in the increasing number of industries established in this district, the Edinburgh Brewery (1886), the North British Distillery (1887), McVitie and Price's biscuit factory (1888) and The Edinburgh Foundry (1893); in addition to these there were numerous small service industries such as the contractors who built the houses, bakers, cabinet makers, light engineering and machine shops. Many of these industrial premises had originally

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2. Stevenson, R.L. "Picturesque notes on Edinburgh", Rupert Hart-Davis, London, 1954, 96.

been located on the periphery of the city, but were gradually surrounded by the westward spread of tenement blocks which were erected on the vacant plots between the factories, without regard for amenity or open-space provision. The entire district developed in a "leap frog" fashion with houses and industry alternately encroaching upon the adjacent agricultural land.

With the completion of Osborne Terrace in 1880 and the commencement of building on Devon Place a ribbon of urban expansion reached west from Haymarket to Roseburn. Meanwhile, Douglas Terrace and Glencairn Terrace were also under construction followed by Eglinton Crescent and Coates Gardens. These streets occupied the area west to Donaldson's Hospital and joined up with Osborne Terrace and this projection of the city in conjunction with that to the south at Gorgie surrounded the industrial premises at Haymarket Station. With the completion of the terraces and crescents north to the Water of Leith the "New Town" era came to an end, since the elegant houses and formalised street pattern found in this part of Edinburgh was never repeated.

The north western suburbs grew very slowly after 1875, possibly because of the villa development in other districts which offered the additional attraction of a private garden not found in the four or five storey terraced houses of this area.

In contrast, east of Stockbridge house construction along Pitt Street, Eyre Place and Brandon Street extended the built-up area north to the Water of Leith. Broughton had also grown quite rapidly as tenement houses were constructed to meet the housing requirements of the people working in the industries both of North Edinburgh and South Leith.

The urban area in 1895 continued to form a very compact unit since expansion had taken place on a broad front rather than out along the main roads. The high class residential suburbs of Newington, Morningside and the "New Town" had grown considerably as did the mixed tenement and industrial districts at Gorgie-Dalry and between Edinburgh and Leith. In contrast, however, the middle class residential areas at Learmonth and Pitt Street had experienced little development during the previous twenty years.

PART II

CHAPTER 3

The rural-urban fringe of Edinburgh in 1895

Apart from the link north to Leith there were few instances of fringe housing developments adjoining the urban area in 1895 (fig. 32).

At Abbeyhill only three small tenement blocks on the east side of the suburb remained as part of the rural-urban fringe. The city had also spread west towards Roseburn, but in this instance the old village had not yet been surrounded. The attractiveness of the western districts was clearly shown by the appearance of several substantial villas immediately beyond the city boundary linked to Roseburn by the houses built along Abinger Gardens. Inverleith Row remained as a long ribbon of houses reaching north from Canonmills to Granton Station around which there was a growing suburban community.

Improved transport facilities, both road and rail, had drawn many of the adjacent villages into much closer contact with the city; those with high amenity were especially attractive to many people who worked in Edinburgh.

Duddingston retained its rural character despite its proximity to Edinburgh, largely because the Royal Park could not be traversed by wheeled traffic, and this preserved the village from a large

influx of city people. The Valuation Rolls for 1895 showed that in addition to the agricultural and estate workers who lived in the village there were two lawyers, a doctor, an accountant and a banker.

The village of Liberton had increased in population from 173 in 1875 to 379 in 1891 and the Valuation Rolls for 1895 indicated that nearly one half of the labour force of forty-five would have had to travel into Edinburgh to work. This commuter element included lawyers, doctors and bankers. The village also had an increasing number of retired people among its resident population, several were retired professional people, many of whom no doubt previously resided in Edinburgh. The presence of only one shop in a village of this size reflected the proximity of the city with its wide range of retail and service facilities which would be accessible to all the people living in Liberton.

The villages in the valley of the Water of Leith had not felt the full impact of the railway to Balerno in 1875 since it had only been opened the previous year. However, by 1895 this railway carried a substantial passenger traffic to the villages of Colinton and Juniper Green and had opened this attractive district to ramblers, golfers and picnickers.

The influx of new residents into Colinton had increased its population from 300 in 1871 to 475 in 1891 and it was established from the Valuation Rolls that forty out of eighty five residents whose employments were recorded would have had to leave the village to work and most likely travelled into Edinburgh. The increasing employment dependence on the city and the small number of shops would appear to corroborate the fringe classification given to the village in 1875.

Juniper Green had also begun to feel the effect of improved transport links with Edinburgh, since although the majority of the workers living in the village were employed in the local mills or adjacent farms the Valuation Rolls indicate that in 1895 almost a quarter of the labour force of 200 would have had to travel elsewhere for work. Since many of these people were in professional employment/this meant that Edinburgh must have been their place of work. This factor and the increasing recreational facilities in the area adjacent to the village necessitates the inclusion of Juniper Green as part of the city's fringe area.

On the other hand greater distance from the city and thriving local industries, meant that Currie and Balerno showed no evidence of residential links with the nearby urban area.

The village of Corstorphine resembled Juniper Green, in as much as its dormitory role was increasing rapidly, but this sector of the community did not as yet comprise the majority of the labour force. In 1895 it had a population of 1,178 and of the 180 people whose employments were recorded in the Valuation Rolls 45 would have had to commute daily into Edinburgh. This group consisted of lawyers, bankers, and chartered accountants, but the majority were clerks. The shopping facilities in Corstorphine were very varied and indicate that the community was fairly self-sufficient. However, growing ties with the city, taken in conjunction with the neighbouring urban orientated land uses and the proposals for a suburban railway link with Edinburgh, necessitate the inclusion of Corstorphine as part of the city's rural-urban fringe.

Cramond village grew steadily during the last quarter in the nineteenth century with an ever increasing number of cottages being rented by people who also had homes in Edinburgh[1]. Table 1 shows.

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1. Valuation Rolls, Midlothian, 1875-1905

out of eighty cottages in the village in 1895 over fifty fell within this category.

Table 1

Number of Cottages in Cramond rented by Edinburgh families

TOTAL number of cottages	80
Year	Number of cottages rented by Edinburgh families
1875	6
1880	12
1885	24
1890	53
1895	55
1905	58

An investigation of the Edinburgh addresses and occupations of these people showed that they did not live in any particular district of the city or belong to any one social class. That Cramond should have emerged as such an attractive residential and holiday village long before the opening of the railway line to Barnton in 1894 was indicative of its natural beauty and seclusion.

The other villages in the district, Blackhall, Davidson's Mains and Barnton were much slower to assume a dormitory role. However, by the time the suburban railway line to Barnton was opened, the residential attractiveness of these agricultural villages had been recognised by many Edinburgh people drawing these communities into the fringe area.

The railway to Barnton was built as a result of the foresight and

enterprising outlook of the local landowner as was indicated by E. Lomax who wrote that "In the 1880's the mansion home and estate of Barnton, then the property of Sir James Maitland Bart. were very much in the countryside with the nearest part of the city still miles away. Sir James thought, however, that Barnton would make a wonderful country residential estate and the Caledonian Railway Company co-operated by agreeing to build a branch railway specially to connect the estate with the city.

A Glasgow firm of chartered civil engineers were appointed to examine the project and soon a remarkable integrated scheme was produced for an estate of 400 houses occupying 600 acres of land together with a branch railway to join the existing Leith branch at Craigleith. The line was finally opened in 1894.

The fencing of ground for this ambitious residential scheme had meanwhile begun and at the time of the opening it was announced that fourteen houses were being built. Thereafter expansion continued slowly but steadily"[2] That such an ambitious enterprise could stimulate so much activity was indicative of the demand for homes in rural areas within easy reach of the city.

In 1896 there were 114 mansion houses around Edinburgh and of these the Valuation Rolls recorded the employment of the residents of 101; of these 47 worked in the city. The distribution of these houses is shown on Fig. 30. The growing number of large houses occupied by people commuting into Edinburgh is a clear indication of improved transport media enabling those families who wanted to, to live in rural areas. However, as would be expected the majority of families moved out to those

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2. Lomax, E.S. "The end of the Barnton line." Article in the Edinburgh Evening News, May 30th, 1960.

mansion houses in close proximity to the built-up area; but more distant districts which were renowned for their natural beauty and quietness, Liberton, Colinton, Balerno and Cramond, were becoming increasingly attractive.

The distribution of industrial premises was in part conditioned by those already in existence in 1875 and in part by the expanding railway and road networks. The choice of Fountainbridge as the location of the terminus of the Union Canal gave rise, as has already been noted in Chapter 1, to an industrial suburb, and this was augmented by the construction of two railway lines through the district. The resultant industrial district with its close juxtaposition of factories and working class houses, crept westwards towards Gorgie. However, as the tenement blocks were built on vacant lots between industrial premises they surrounded and drew these establishments into the urban area. Consequently only those premises beyond these houses formed part of the fringe area. In 1895 these included two breweries, a distillery, the city store depôt and a large bakery forming an extensive industrial complex along with the industries beside the Water of Leith at Delhaig (Fig. 34).

Upstream a thread of factories and mills followed the Water of Leith to Slateford and Colinton, while downstream there were other industrial concentrations at Bells Mills, Dean, Canonmills, Bonnington and Leith. All of these establishments were strongly linked to the city since their labour force resided there and the fact that Edinburgh was the market for many of the goods produced in them.

The industrial complexes at St. Leonard's, Meadowbank and Hawkhill which had grown up around the railway yards and termini, along with the large brewery at Abbeyhill, continued to form part of the fringe as they had done in 1875.

In 1889 Craigmillar was chosen by Wm. Murray and Co. Ltd. as the site of their first brewery. Although quite distant from the city this area had the advantages of extensive open space for building, a plentiful supply of suitable water from wells for making the beer and proximity to the Edinburgh Suburban and Southside Junction Railway which had been opened four years earlier. The railway was used both to distribute this bulky product and enabled workers living in the city to travel out to the brewery. This journey to work was noted by W. McPhail who stated that "The breweries give employment to a large number of people for whom there is not sufficient accommodation and many of the work people, some by necessity, others by choice, reside in Edinburgh."[3] A creamery had also been established in this district and it, like the adjacent breweries, made use of the railway to transport its products into the city.

Although it was now linked to the residential districts of Wardie and Trinity and Newhaven, Granton harbour did not develop as a commuter settlement. However, in its role as an industrial area it continued to expand with the location there of an iron works and chemical works. This remote site was chosen for these activities to take advantage of the nearby port facilities and because of the obnoxious fumes emitted by the factories.

Hospitals, sanatoria and other institutions had multiplied as Edinburgh's population grew and the older facilities could no longer meet the demands placed upon them. Many of these institutions required large buildings and new facilities were often located in extensive open spaces close to the city. This factor, together with a growing realisation that country air was beneficial to the patients resulted in the distribution

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3. McPhail, W. "Edinburgh street studies". Reprinted from the Edinburgh Evening News, Edinburgh, 1911, 218.

pattern shown on Figs 35 and 36. Leith Poor House had been established on the north side of Craigentinny Meadows to the east of the burgh, while Leith Public Hospital was located some distance to the west of the town on Ferry Road. The latter formed part of an institutional complex at Inverleith along with the Edinburgh Poor House, the Royal Victoria Consumption Hospital, Fettes College and a small sanatorium.

Clustered around Dean village on both banks of the Water of Leith was the educational complex which has already been noted in previous chapters.

To the south of the city a large group of medical establishments had come into being by 1895 since the Edinburgh Lunatic Asylum at Morningside had been joined by Craighouse Mental Hospital, the City Poor House, the New Fever Hospital and the Edinburgh Hydropathic.

In addition to these three major concentrations there were several isolated instututions, a hospital at Corstorphine, the Old Fever Hospital at Slateford, an industrial school and home for unmarried mothers at Liberton and a hospital at Portobello.

The location and number of military establishments adjacent to Edinburgh did not change between 1875 and 1895 (Fig. 37).

The benefits which accrue from open space recreation areas and the need to provide these facilities close to the new residential and industrial suburbs of the city were recognised by Edinburgh Corporation towards the end of the nineteenth century. Blackford Hill, purchased in 1885, was subsequently laid out as a very attractive natural park containing a pond and a few roughly constructed paths. The growing awareness of the need for open space facilities and the added beauty they give to the city, led to the acquisition of the Braid Hills in 1890, an extensive hill area which was opened as a public park and municipal golf

course. In the same year an offer to buy the Hermitage of Braid was turned down by the owner, much to the annoyance of many Edinburgh citizens. The absence of any open-space in the western industrial suburbs was alleviated by the opening of the Harrison Park. West of the city a park was established at Roseburn, while to the north the loss of the park at Learmonth, which had been sold for house building, had been compensated for by the opening of a new park at Inverleith in 1881. These new spaces along with those already in existence at Leith, Portobello, the Royal Park, the Dean Gorge and at Warriston meant that every district of the city had access to an open space area (Fig. 38).

The same map also indicates that recreation areas in the form of private and public sports grounds had come to play a more important role in the everyday life of the people of Edinburgh. The main concentration of these facilities were at Hawkhill, Morningside and Inverleith. Golf had been played on the Commons of Edinburgh and Leith for many years, but the sport had formerly been restricted to the more wealthy citizens who could afford the time and expense needed to play this game and to those who could join the exclusive golfing societies. However, towards the end of the nineteenth century as leisure hours and affluence increased, and travel out from the town became easier, many new courses had been established around the city. Leith Links, Portobello Park and the Braid Hills acted both as parks and golf courses owned by Edinburgh Corporation and freely accessible to all citizens. In addition a number of private clubs were also established: Duddingston (1895), Lady Road, Craigmillar Park (1892), Torphin (1895), Baberton (1893), Corstorphine Hill and Murrayfield.

There was also a considerable increase in the number of leisure and entertainment facilities around the city. The Hibernian Football

Club ground at Easter Road, the Heart of Midlothian Football Club ground at Tynecastle, a polo ground at Murrayfield, the Scottish Rugby Union football ground at Inverleith, the skating pond at Craiglockhart and the curling pond at Braid were opened and joined those facilities already in existence, the Royal Botanical Gardens, which were further expanded in 1881 and Duddingston skating and curling pond (Fig. 39). However, the small zoo at Broughton had ceased to exist having been displaced by the spread of houses north towards Leith.

The cemeteries at Newington, Dean, Warriston and Rosebank had not yet been surrounded by the expansion of the built-up area and these along with the more recently established burial grounds at Leith, Easter Road, Piershill, Morningside and Comely Bank formed part of the fringe area (Fig. 38).

Another indication of Edinburgh increasing population (Table 2) was the need to improve the city's water supply. In response to this demand the City Water Department built a small storage reservoir and several filter beds at Liberton, and several larger reservoirs in the Pentland Hills (Fig. 37).

TABLE 2

The population of Edinburgh 1801 - 1961

1801	82,560	1881	228,357
1811	102,987	1891	261,225
1821	138,235	1901	316,837
1831	161,909	1911	320,318
1841	166,450	1921	420,264
1851	193,929	1931	439,010
1861	168,121	1951	466,767
1871	196,979	1961	468,361

The large quantities of market garden produce required as Edinburgh's population continued to expand were in part supplied by the Trinity-Inverleith district, but by 1895 new gardens had been opened at Corstorphine, Nether Liberton and Piershill. The demand for flowers and plants in the city provided an important outlet for the produce of Dickson's nursery at Craigmillar, while at Craigentinny and Lochend the irrigation meadows were still being cultivated.

Leith Walk formed a spine on either side of which urban development had linked Edinburgh to Leith. This was a reflection of the growing interdependence of the two burghs since their urban areas had become indistinguishable both in a morphological and functional sense. However, since a study is being made of Edinburgh the presence of the administrative boundary between the two towns has to be taken into account, preserving Leith's potential fringe classification. The employment interchange between them, the industrial interdependence which had continued to develop, recreational links and entertainment interaction had grown to such an extent that there was a movement to have Leith annexed by the city. However, this was vigorously opposed and the proposal was turned down by the Boundary Commission in 1896.

Leith had not only expanded southwards, but had also overstepped Leith Links where an extensive residential area had been developed. Westwards the built-up area of the burgh had expanded over the open space which had formerly separated it from Newhaven and Trinity. These residential suburbs had also continued to expand and had come to form, along with Wardie and Granton to the west and Leith to the east, an extensive built-up area which must be included within Edinburgh's fringe.

Portobello's links with Edinburgh both as a residential and holiday town had resulted in a rapid increase in its population as can be seen on Table 3.

TABLE 3

The Population of Portobello 1821-1911

1821	1,912	1871	5,481
1831	2,720	1881	6,794
1841	3,588	1891	8,182
1851	3,497	1901	9,180
1861	4,366	1911	11,037

However, space for house building became an ever increasing problem for the burgh because of its restricted administrative area and the bounding role of the main east coast railway line. In an attempt to resolve these problems, and prompted by the recognition of the close ties it had developed with Edinburgh, Portobello entered into negotiations to become part of the city. At the ceremony marking the end of Portobello's independence in 1896 the provost was reported as saying that "it was not for want of natural ability that Portobello had decided to unite her destinies with those of the City of Edinburgh. Portobello had men who were quite able to conduct its affairs and had done so for many years past, and her progress had been equal to that of any town in Scotland, in population, in wealth and in rental. In his opinion, however, for a good many years past it had become evident that their close connection with Edinburgh made it desirable that they should unite their forces for the purpose of promoting those interests which were necessary and desirable for the welfare of the inhabitants."[4] Therefore, sixty-three years

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4. Baird, W. "Annals of Duddingston and Portobello", Andrew Elliot, Edinburgh, 1898, 433.

after it had received burgh status, (a period during which its links with Edinburgh had grown progressively stronger), the two towns were united under a single administrative body despite the fact that they were separated by part of Midlothian County (Fig. 2).

In 1895, however, there was still not sufficient evidence to include Musselburgh within Edinburgh's fringe area. This was due mainly to the fact that the paper and wire industries in the burgh were undergoing rapid expansion at that time.

In an attempt to establish as accurately as possible the extent to which the Edinburgh market influenced the agricultural economy of the surrounding area a study was made of the Parish Agricultural Returns for 1886 and 1896.

The city of Edinburgh and several of the adjacent suburban parishes had an overwhelming proportion of milk cows relative to all cattle as can be seen on figs 41 and 42. All around this marked nucleus there was a secondary ring of parishes with a slightly lower proportion of dairy cows. Several more distant parishes were also prominent and the city would have provided the main outlet for the milk in all except Lasswade which had a local market of its own. This pattern is indicative of the increasing milk requirements of Edinburgh, the stricter implementation of sanitary regulations for dairies within the built-up area, and the fact that although milk was beginning to be transported over longer distances regional marketing had not yet reached significant proportions.

The localised concentration on potato cultivation around Edinburgh found in 1877 was no longer evident on the map for 1886 (Fig. 41). However, despite the fact that the acreage under potatoes had decreased several suburban parishes stood out relative to the remainder of the area around the city, apart from the more distant parish of Tranent.

This decline was not an isolated occurrence for as can be seen on

Fig. 42, the percentage of the total cultivated area under potatoes was very similar to that found ten years earlier. The expansion of the built-up area of Edinburgh might explain the fall in acreage in these parishes closest to the urban area, but improved transportation media is probably the main reason for the overall decline, since it was becoming easier to carry potatoes and other bulky crops from more distant areas where conditions were better suited for their cultivation.

In 1886, St. Cuthbert's, which was almost completely built-over continued to be by far the most important pig breeding parish, but the adjacent parishes of Cramond, Colinton, Corstorphine and Liberton were also important (Fig. 41). However, of the remaining parishes in the area only Kirkliston and Lasswade had significant numbers of pigs. Ten years later as can be seen in Fig. 42, the imposition of stricter sanitary regulations in the built-up area had resulted in a drop in the number of pigs in the City of Edinburgh Parish (St. Cuthbert's), whereas Cramond, Corstorphine, Colinton and Lasswade had increased totals. There had, however, been a sharp decline in the parishes of Liberton and Kirkliston. The overall increase in the number of pigs would appear to have resulted from the greater commercialisation of the pig breeding industry especially in those parishes where waste milk was plentiful, or those in which waste food could easily be acquired. This naturally led to a growing concentration of pig keeping in the milk-producing parishes close to Edinburgh and those where swill could be cheaply transported out from the city.

The expansion of the town greatly reduced the acreage of market gardens within the parish of Leith which meant that in 1866 only the small parish of Prestonpans had over 10 per cent of its total cultivated area under vegetable crops while the urban parishes of St. Cuthbert's and South Leith now had between 6 and 10 per cent as did the suburban parishes of Duddingston and Inveresk and the mining parish of Dalkeith (Fig. 41). In

1896 there had been little change in the distribution which still displayed a slight urban concentration. This reflected the importance of the Edinburgh market since, despite the fact that the soils and climate were ideal for vegetable cultivation throughout the entire coastal area there was a marked concentration in the vicinity of the city.

Nursery gardens illustrate this dependence to an even greater degree since in both 1886 and 1896 St. Cuthbert's and North Leith were by far the most important for this type of cultivation (Figs 41 and 42).

The built-up area still formed a very compact unit in 1895 with only a few ribbon or suburban housing developments. The city had pushed out towards the northern suburbs and east towards Abbeyhill, but had not yet encompassed them. Other urban expansion had crept west towards Corstorphine.

However, the small amount of suburban growth could in part be accounted for by the increasing number of families which had chosen to move out to the surrounding villages in search of a rural environment and village society, absorbing much development that would otherwise have taken place adjacent to the city.

There had been little change in the number of fringe industrial establishments except for the continued expansion of some of the older districts and new out of town complexes where the railway enabled firms to locate close to areas with particular advantages.

The pattern of institutional location began to show signs of marked groupings during this period. Similar types of establishments were often attracted to one another giving rise to groups like that which had been in existence at Dean for many years. In addition there was a wide scatter of isolated institutions in the area between the commuter villages and the built-up area.

This area was also beginning to emerge as a park and recreation zone in response to the growing demand for these facilities. The City Council were quick to appreciate the benefits which accrue from parks as was

shown by the numerous open spaces which characterised this period of urban expansion. Sports grounds and golf courses added to this provision of permanent recreation areas close to the urban area, but had also begun to spread quite far afield.

The increasing amount of leisure time enjoyed by the people had resulted in the provision of a wider range of entertainment facilities in close proximity to the city.

By 1895, as has been indicated, the area between the city and the Firth of Forth to the north, and that within three miles to the south east and south, four miles to the south west and west, and five miles to the north west, had become intensively urbanized as more and more city orientated land uses had spread outwards from Edinburgh. The greatest concentration of urban land uses was to be found in the zone immediately adjacent to the built-up area, but had also begun to influence a much wider area.

Agriculture formed the basic activity of the outer fringe zone, in addition to its important role in the inner area. The areal extent of the two fringes together was similar to that found in 1875, but the urban expansion since that year had greatly reduced the area of markedly urban-orientated agricultural activity.

PART 1

Chapter 4

Urban growth between 1895 and 1918

The amount of urban expansion which took place during this period was much less than would have been the case had the outbreak of the First World War in 1914 not brought all house building in Edinburgh to a halt (Fig. 44).

Edinburgh and Leith had, by 1918, become continuously built-up along almost the entire length of their common boundary.

The suburb of Abbeyhill had expanded north along Marionville Road, Dalgety Road, Dalgety Avenue and Wishaw Street between 1894 and 1900, surrounding the large brewery and linking up with the Albion Road development which had been completed in 1907.

South of Abbeyhill, however, the Royal Park had preserved a "status quo" with the result that apart from some infilling on Kilmaurs Road (Rosehall) there had been no urban expansion between Comely Green and Rosehall, while to the west Newington Cemetery preserved the 1895 boundary of the built-up area west to the junction of Lady Road and Craigmillar Park.

The only change in the Newington district came about with the completion of the houses along Esslemont Road. Between Newington and Morningside expansion had been limited because of the considerable amount of infilling which was possible in this area. St. Albans Road begun in 1880 was not

completed until 1907, Relugas Road was developed between 1880 and 1921 and West Relugas Road between 1900 and 1921, extending the boundary of the built-up area south as far as the suburban railway, except for the land occupied by the golf course at Blackford.

Morningside expanded in an irregular fashion, moving south in stages following the various city boundary adjustments (Fig. 2). This meant that it was not until after the Extension Act of 1896 that the area south to the Hermitage of Braid could be fully developed, finally being completed in 1910. Meanwhile west of Comiston Road houses had reached as far as the Sick Children's Hospital, the Mental Hospital at Craighouse and south to Comiston Drive.

Apart from the erection of a small group of houses on the south side of Colinton Road on Merchiston Gardens there was no change in the limits of the urban area between Morningside Cemetery and Craiglockhart Station.

The wedge of fringe land uses which had bordered the Union Canal in 1895, was surrounded by the houses built along Cowan Road, Ashley Gardens and Ashley Drive, which linked Shaftesbury Park to Polwarth soon after 1900.

The tenements built at Shandon, on the outskirts of Gorgie, had by 1910 brought most of this industrial district into the built-up area, and the Wheatfield development extended the boundary of this area north to the Edinburgh-Glasgow railway line.

At Roseburn the old village had also undergone considerable tenement expansion by 1905 and had in that year been drawn into the city proper with the completion of the houses at Wester Coates. Meanwhile a high class residential suburb had emerged to the west of the village. Abinger Street was completed in 1900, Henderland Road, Garscube Terrace, Succoth Place, Murrayfield Drive, Kingsburgh Road and Murrayfield Avenue in 1904, Ormidale Terrace in 1907 and Succoth Gardens in 1914; all of which had

come to form part of the urban area by 1918.

On the north side of the Water of Leith the residential district of Learmonth had pushed west to Learmonth Grove and north to Comely Bank Road.

East of Stockbridge the Water of Leith continued to act as the boundary of urban growth as far as Broughton where houses and industry had spread north to Powderhall and east to Rosebank Cemetery, where the built-up areas of Edinburgh and Leith became continuous.

The growth of the urban area during this period was limited by the outbreak of the First World War, as has already been noted. However, a considerable amount of expansion had taken place prior to 1914 in the high class residential districts of Morningside and Murrayfield. Working class tenement housing at Gorgie-Dalry, Broughton and Abbeyhill had surrounded many former fringe industrial premises, and the middle class residential area at Learmonth grew more rapidly than during the previous period.

PART II

Chapter 4

The rural-urban fringe of Edinburgh in 1918

The main roads radiating out from the city emerged as lines of ribbon development (Fig. 45), as transport facilities improved. East of Abbeyhill a single row of tenements along Royal Park Terrace linked up with the growing tenement suburb of Jock's Lodge, a tenuous link which resulted from the presence of the Royal Park to the south and the railway yards to the north. To the east of Jock's Lodge many people had been quick to acquire the building sites on Portobello Road as they became available with the contraction of Craigentinny Meadows. According to W. McPhail in his book published in 1911 "Those suburbs - the houses one sees from the car (tram) top in a journey from Abbeymount to Portobello - have not until recent years grown very rapidly"[1] There can be little doubt that many of the people living in those houses worked in Edinburgh.

Another tenement ribbon had been built southwards along the east side of Dalkeith Road overlooking Newington Cemetery.

Stretching south from the built-up area at Newington a row of large villas along Gordon Terrace was being developed. These houses overlooked Nether Liberton, the terminus of the cable car route which had come into

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1. McPhail, W. "Edinburgh Street Studies" Reprinted from the Edinburgh Evening News, Edinburgh, 1911, 221.

operation at the end of the nineteenth century, providing this district with a regular transport service into the city centre. This was supplemented within a few years by a bus service which ran south from Edinburgh through Liberton to Penicuik; this route was inaugurated by a Mr. Aitkenhead who had "in May 1906 entered the service of the S.M.T. Co. (Scottish Motor Traction) whose fleet then comprised a mere five vehicles. He worked on the only three routes covered by the company in those days

Edinburgh to Cramond

Edinburgh to Corstorphine

Edinburgh to Queensferry.

He opened the Edinburgh to Loanhead route, which was followed shortly after by that from Edinburgh to Penicuik."[2] These two new services both ran via Nether Liberton, Liberton Dams, Liberton and Burdiehouse and their inauguration was indicative of a growing demand for transport into the city from the area to the south; not only from the towns of Loanhead and Penicuik, but also from the villages en route. No doubt largely in response to the improved access afforded by the bus and tram a number of houses had been built at the foot of Liberton Brae.

A row of houses was also to be found along Blackford Avenue around the eastern flanks of Blackford Hill south of Blackford Hill Station, a halt on the suburban railway. This would seem to re-emphasise the importance of good transport facilities in opening up attractive suburbs for residential development.

Another example of this process followed the extension of the cable car routeway to Braid where several houses had been built along the valley side between the Braid Hills and Craiglockhart Hills. This cluster of houses formed part of the fringe since it was separated from the built-up

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2. Edinburgh Evening News "From our turrett window" November 22nd, 1956.

area by the deep, steep sided gorge of the Braid Burn.

Colinton Road, running along the western slopes of the Craiglockhart Hills, commanded a fine view over the northwestern outskirts of the city, a factor of great importance in the construction of a row of houses south west of Craiglockhart Station almost as far as the Edinburgh Hydropathic.

Beyond the westward expansion of the built-up area which had reached Murrayfield the group of very large villas on Ellersley Road continued to form a fringe housing projection; as did the houses along Inverleith Row, those around Granton Station and the new houses built along Inverleith Place.

In addition to these ribbons several isolated groups of fringe houses had been developed at Northfield, Morningside, Gorgie, Saughton and Ravelston each forming the initial stages of much more extensive housing developments.

Duddingston village was largely unchanged, preserving its established character and avoiding the new housing expansion which was taking place in many of the villages around Edinburgh. This was in part due to the difficulty of direct vehicle access to and from the city and the strictly controlled estate properties on all sides of the village.

The population of the village of Liberton had increased from 379 in 1891 to 600 by 1918. The employment information recorded in the Valuation Rolls for 1905 and 1918 showed that apart from a few agricultural workers the village was inhabited by a wide range of professional people who must have worked in Edinburgh. There were also several retired people whose former occupations indicate that a few of them had formerly worked and possibly resided in the city. With the construction of houses at Liberton Dams, which had a population of nearly 400 in 1918, Liberton village had almost become a continuous part of the built-up area.

Writing about Colinton in 1911 W. McPhail[3] expressed the opinion that although there would be further expansion in the district these developments would not be anything like so extensive as those in the Morningside or Dalry-Gorgie districts since Merchiston Castle School and sports ground located between the village and the city would act as a hindrance. This assessment was, however, soon proven to be incorrect for by 1914 the village had grown northwards to link up with Juniper Green while to the south houses advanced towards Dreghorn and Bonaly, overwhelming the old village and giving rise to a large suburban community. An indication of the population increase of the Parish of Colinton is given in Table 5 (page 109). The employment characteristics of the residents of this district recorded in the Valuation Rolls for 1918 indicated that one half of the one hundred and sixteen people would have had to travel daily into Edinburgh to work; mainly professional people who had taken advantage of the established rail link and the improving road access to move out to this very attractive district on the foothills of the Pentlands.

After 1900 Juniper Green's residential ties with Edinburgh grew very rapidly as was indicated by the fact that in 1905, one third of the two hundred people whose employments were given in the Valuation Rolls would have had to commute into the city to work and by 1918 this section of the community had risen to forty per cent of those employed. The village population was growing quite rapidly, having increased from 1,175 in 1891, to 1,546 in 1901, and 2,300 in 1921, an indication of the great beauty of this community overlooking the deep gorge of the Water of Leith with beautiful aspects to both north and south. The fact that Edinburgh was some distance away meant that the retail facilities of Juniper Green were

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3. W. McPhail, op.cit., 175

quite diverse, necessitating only occasional shopping trips to the city for more specialised goods. Another reason for the wide range of establishments in the village would appear to be because of its role as a small service centre for the adjacent villages and agricultural area.

In 1911 W. McPhail noted that "the fine old village of Corstorphine will soon be suburban Edinburgh. Since the new railway came in 1902 the place has grown greatly, but more frequent connection is wanted and a fresh impetus will be given to this rural settlement, so favoured by Edinburgh's professional people, by the extension of the car system. In a decade or so the village has doubled in size."[4] The branch railway line to Corstorphine, supplemented by the S.M.T. Co. bus services, brought the village within easy reach of the city and resulted in a rapid increase in its population from 1,100 in 1895 to 2,000 in 1905, when nearly forty per cent of the village labour force commuted into Edinburgh and by 1918 the population had grown to 2,700 when one half of all those employed travelled into the city to work.[5] The village expanded mainly towards the north over the slopes of Corstorphine Hill since the area to the south formerly part of Corstorphine Loch, was regarded as being too low lying and damp to make suitable building land. In addition the higher ground to the north offered an excellent outlook over the south and south western approaches to the city. The village preserved its strong retail and service functions, but had come to depend more heavily on Edinburgh for specialised goods and services, some of which, such as those provided by tailors, cabinet makers and watch repairers, had formerly been found in the village.[6]

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4. W. McPhail, op. cit, 209
5. Valuation Rolls, County of Midlothian, 1896 and 1918
6. Ibid., Valuation Rolls, 1896 and 1918.

It was only to be expected that the stations on the suburban railway to Barnton would emerge as the foci of small suburban communities, and the fact that these halts were located in already existing agricultural villages of Blackhall, Davidson's Mains and Barnton, meant that nuclei were already in existence. At Blackhall the first houses were built along the main road towards Queensferry and later began to spread west towards Corstorphine Hill. The villages of Davidson's Mains, on the other hand, had changed little, but the large villas on Sir James Maitland's estate at Barnton formed an extensive development adjacent to this old settlement. The terminus of the railway line at Barnton had also begun to emerge as a suburban community by 1918 with the location there of a number of less pretentious houses in addition to the several very large villas which formed part of Maitland's residential estate.

Cramond village continued to be characterised by the large number of Edinburgh people who rented cottages in the village, fifty-eight out of the eighty cottages in 1905, and this number remained constant until 1918. The Valuation Rolls for 1918 indicated that almost all of the eighty-seven people whose employments were recorded would have had to travel daily into Edinburgh to work. This holiday and residential role emphasises the attractiveness of the village with easy access into the city provided by the railway to Barnton and the S.M.T. Company's bus service. This factor and the variety of shops in the neighbouring village of Davidson's Mains must be the reason for the almost total absence of shops in Cramond.

Improved transport facilities gave added impetus to the growing demand for country residences resulting in a great increase in the number of mansion houses in the area around Edinburgh which were occupied by people working in Edinburgh. In the Valuation Rolls for 1905 employment

information was given for one hundred and four out of one hundred and sixteen of these houses and of these fifty-one were occupied by commuter families (Fig. 46). These houses were located in all districts around the city, but the high amenity areas of Duddingston, Liberton, Colinton-Balerno, Corstorphine and Cramond emerged as especially attractive rural districts favoured by ease of access into the city. In 1918 (Fig. 47) the number of houses with occupants who worked in Edinburgh remained stable at fifty-one out of the ninety-seven houses for which this information was available. However, the overall total of mansion houses investigated had fallen to one hundred and five with the conversion of several houses to other uses such as nursing homes, hospitals and golf club houses. The distribution of Edinburgh orientated houses was similar to that found in 1905, but another concentration had emerged in the Cogar area to the west of the city.

The railway network continued to play an important role in the location of fringe industrial premises around Edinburgh (Fig. 48) with the older industrial complexes at Hawkhill, Meadowbank, St. Leonard's, Craigmillar and Gorgie-Dalry being supplemented by the factories established adjacent to the suburban railways at both Newington and Morningside.

The two breweries built at Craigmillar formed a large industrial complex with local housing provided for only 600 people in 1901. This meant that a considerable proportion of the labour force had to travel out from the city, no doubt by means of the suburban railway.

Gorgie and Dalry continued to form major industrial districts, but the construction of houses on the vacant land between the factories meant that despite increased industrialisation only a few peripheral premises continued to form part of the fringe area. In 1918 these comprised two breweries, a distillery and an iron foundry, which had

become continuous with the mills and tannery on the Water of Leith at Delhaig.

The laundries at Slateford were still part of the rural-urban fringe and were joined in 1910 by the cattle market, corn market and the slaughterhouse, which were located on the south side of the ~~river on the south side of the~~ Water of Leith. This site was chosen because of its peripheral location where the large area of land needed was available and also because of its accessibility to Edinburgh. The first electric tram routeway in Edinburgh, opened in 1910, ran between Merchiston and Slateford and carried workers from the city to the market.

Further downstream the mills and tannery at Dean and the diverse industries at Bonnington continued to form part of the fringe area.

The location of the Edinburgh and Leith gas works at Granton soon after 1900 greatly increased the port's industrial character. This land use, like the slaughterhouse already mentioned, was located outside the built-up area because of its low amenity value.

The number and variety of institutions established within and around the city continued to grow (Figs. 49 and 50). The group of medical and educational institutions at Inverleith had been supplemented by a small sanatorium; the complex of schools on the north side of the Water of Leith at Dean had been joined by St. George's School for girls: and George Watson's School relocated from the city centre added to the group of institutions at Morningside and Craiglockhart. To the south west of the last mentioned group an Old Soldiers' Home had been established at Redford; Merchiston Castle School had been relocated from Merchiston to Colinton House, and Woodfield House, Colinton, had been converted into a Convent. Liberton had also emerged as a district with numerous institutions for the Industrial School for boys adjacent to the village and the home for

unmarried mothers at Alnwickhill had been joined by a Convent at Gracemount, the Victoria Hospital at Southfield, and a Nursing Home and Industrial School for girls on the outskirts of Gilmerton to the south.

Two new institutions, the prison at Saughton, built in 1914 as a replacement for the old jail formerly located on Calton Hill and the Hostel for Women students at Newington were also part of the fringe area along with the isolated hospitals at Corstorphine, Seafield, Duddingston and Portobello.

The military barracks, built at Piershill during the Napoleonic Wars remained in use until 1913 when the new facilities at Redford on the south west side of the city were opened. With the outbreak of war in 1914 these facilities became inadequate and the neighbouring Dreghorn Estate was acquired by the War Department. Being located on the foothills of the Pentland Hills (Fig. 51) this estate provided excellent artillery ranges and training areas.

Parks and recreation areas became increasingly important features of Edinburgh's urban area during this period. The Saughton Estate was purchased by the Corporation and converted into a large park, athletics area and golf course, while smaller parks had been established at Prestonfield, Orchard Brae and Redbraes. Along with those already found at Leith Links, Portobello, the Royal Park, Braid Hills, Blackford Hill, Roseburn, Dean Gorge, Inverleith and Warriston, the new parks provided ample open-space within easy reach of every residential district within the city (Fig. 52).

The same map also shows the distribution of playing fields and sports grounds, which was characterised by the large concentration in the Inverleith area where the Edinburgh Academy, Daniel Stewart's College, Melville College and Fettes College all had sports grounds and where the Scottish Rugby Union gootball ground and the Grange Cricket Club ground

were to be found. At Powderhall and Hawkhill both to the north of Edinburgh there were two other sports stadiums.

Golf continued to grow in popularity as was indicated by the opening of several new courses. A new Municipal course was laid out at Saughton, but the increasing number of private clubs was much more significant. Part of Craigentinny Meadows, adjacent to Leith Hospital, had been converted into a golf course, Craigmillar Park and Lothianburn courses had been enlarged from nine holes to eighteen holes and seven new clubs had been established, the Merchants' Club at Craiglockhart (1908), Kingsknowe (1909), the new Murrayfield Club (1900), Ravelston (1912), Barnton (1913), Bruntsfield (1913), and Turnhouse (1909). This meant that there were fifteen private golf courses and three municipal courses on the periphery of the city in 1918.

The role of the Pentland Hills as a recreation area was of a less specific nature, but they were being increasingly used by Edinburgh people for hill walking.

Other recreational facilities still in use were the curling ponds at Duddingston and Braid, and the skating pond at Craiglockhart.

Entertainment facilities were of growing importance as was indicated by the opening of the Scottish Zoological Park at Corstorphine in 1913, joining the Hibernian Football Club ground at Easter Road, the Heart of Midlothian Football Club ground at Gorgie, the Scottish Rugby Union football ground at Inverleith and the Royal Botanical Gardens at Inverleith as part of the fringe.

None of the cemeteries included within the fringe area in 1895 had been surrounded by the outward expansion of the urban area and they had been supplemented by those established at Northfield, Mount Vernon (Liberton), Saughton and Corstorphine. As can be seen on Fig. 52 the unattractive associations of these land uses had resulted in each of these new cemeteries being

located some distance from the built-up area.

Since the Water Department reservoir and filter beds at Liberton were unable to cope with the growing water requirements of the city additional water filtration beds had been constructed at Fairmilehead (Fig. 51).

Fig. 54 shows that Inverleith continued to have a greater acreage of its area under market garden cultivation than any other district adjacent to Edinburgh. However, the acreage of gardens in this district had declined with the multiplication of parks and playingfields. At Corstorphine the long tradition of vegetable and fruit growing was reflected in the large number of small gardens; the nursery gardens at Cameron Toll were still under cultivation. Two new districts, Northfield and Joppa, had become increasingly important. Writing in 1911 J. Cossar noted that "for the cultivation of flowers and table plants of all kinds, Edinburgh possesses several geographical advantages, and this explains the large number of extensive nurseries to be found in the neighbourhood of Liberton, Inveresk, Granton, Morningside and all along the southern slopes of Corstorphine Hill. An important addition has recently been made to their number by the transference from Rothesay, of the Royal Seed Establishment which now occupies a large area of land between Edinburgh and Portobello."[7]

The unsavory character of the Craigentinny Meadows had led to repeated demands for their removal, but with only limited success since despite quite considerable losses of land to both housing and recreation, the reduced meadow area continued to provide grass for the dairies in and around Edinburgh in 1918.

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7. Cossar, J. "Notes on the geography of the Edinburgh district." Scottish Geographical Magazine, Vol. 27, No. XII, December, 1911, 643-654, 651.

As a result of several boundary changes (Fig. 2), Edinburgh's administrative area had come to surround that of Leith by 1918. This meant that Leith was unable to expand as its population increased (Table 4, page 93) and this led to the development of almost all the available land within the burgh. As can be seen on fig. 45 very little land remained undeveloped in 1918 and the built-up area of Leith had become continuous with that of Edinburgh along a substantial portion of their common boundary. However, despite the physical, economic and social unity which had come into existence over the years, Leith was still administratively independent of Edinburgh and must be regarded as potentially part of the city's fringe area.

TABLE 4

The population of Leith 1841-1931*			
1841	26,433	1891	68,707
1851	30,919	1901	77,439
1861	34,488	1911	80,488
1871	44,721	1921	81,618
1881	59,485	1931	82,934

* Census of Scotland

The interdependence of the two towns had become so comprehensive that a movement was underway in 1918 to unite them under one council; this was finally brought about two years later in 1920. Trinity and Newhaven formed part of Leith's administrative area, and both lost their separate identities as the burgh expanded, but had themselves grown considerably and were described in 1911 as "outposts of the city".[8]

8. W. McPhail, op. cit., 250.

As they expanded these districts became continuous with the houses built at Goldenacre to the south and those at Granton to the west.

Portobello, Edinburgh's dormitory and resort suburb, had a population of almost 13,000 in 1921, an increase of over 4,000 since its incorporation within the city in 1896. The resultant demand for houses in the burgh had been met by expansion eastwards along the coast and to a limited extent on the south side of the main east coast railway line. However, two Boundary Extension Acts in 1900 and 1901 brought the area between the city and Portobello under Edinburgh's administrative control greatly facilitating the expansion of Portobello into the Duddingston district since house building firms had previously appeared to be unwilling to speculate in areas outside the city. But despite this growth Portobello was still physically separate from Edinburgh and must therefore be included within the city's fringe area.

There were, however, several other towns and villages which, mainly because of their thriving industrial enterprises, had withstood the trend towards increased residential links with Edinburgh.

The Burgh of Musselburgh underwent a period of rapid industrial expansion towards the end of the nineteenth century which accounts for the growth of its population from 7,880 in 1881 to 17,110 in 1921. The expanded wire and paper industries gave the burgh renewed vitality halting any trend there may have been towards closer employment interaction with Edinburgh. A measure of this re-vitalisation of industry and Musselburgh's new prosperity was the opening of the Electric Tramway System in 1905, several years before a similar system was introduced into Edinburgh.

The village of Newcraighall clustered around the local coal mine, was still largely uninfluenced by the nearby city, as was indicated by the Valuation Rolls for 1918, despite the fact that much of the coal mined

there was destined for the Edinburgh market. Gilmerton village, although adjacent to several city institutions, also remained apart from Edinburgh. This was partly the result of its relative isolation since "at the turn of the century the inhabitants going into town had either to travel by train on a circuitous journey by Millerhill and Portobello, or walk to the tram terminus at Nether Liberton."[9] However, the low amenity caused by the local coal mines was undoubtedly influential in dissuading city workers from acquiring houses in either Gilmerton or Newcraighall. In Gilmerton, the Valuation Rolls for 1918 showed that apart from agricultural workers and two nurses, the latter probably employed in neighbouring hospitals, the local colliery was the main source of employment for the people living there.

The village of Currie, located to the south west of Juniper Green, overlooking the Water of Leith had grown quite rapidly at the turn of the century, increasing in size from 338 inhabitants in 1891 to 510 in 1918. This was in part the result of an influx of Edinburgh people, but was mainly due to the expansion of a local paper mill, and the opening of the Old Balerno paper mill as a tannery in 1915. A study of the employment information available in the Valuation Rolls of 1918 showed that there was only a very small commuter element in the village population.

Balerno, another mill village further upstream on the Water of Leith was very similar to Currie in that its occupants depended almost entirely on the local mills for employment with only a few people working in Edinburgh.

Corstorphine village would appear to have marked the western limit of large scale commuter travel, since a study of Ratho, a village four

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9. Jack, J.W. "Gilmerton", Suburban A.B.C., Article in the Edinburgh Evening News, November 19th, 1955.

miles further west, did not reveal any links of this kind. The Valuation Rolls also showed that the village had a wide range of shops and services.

The overwhelming advantage previously enjoyed by those farmers who cultivated land close to large urban markets was beginning to be reduced by the improving transport facilities and the technical advances in the means of carrying perishable goods. Consequently the local farmer could no longer completely discount the possibility of competition from other parts of the country. However, in the absence of well-established national marketing organizations, local agricultural production continued to be of considerable importance.

Fig. 55 which shows milk cow numbers and milk cows as a proportion of all cattle illustrates the marked suburban concentration, and this had increased considerably by 1916 (Fig. 56) However, throughout this period, there had been a decline in the importance of milk cows in the farm economy of the Lothians area, apart from those parishes adjacent to Edinburgh. This reflected the increasing quantities of milk being brought into the Lothians from those parts of the country which favoured dairy farming.

There was a similar decline in the cultivation of potatoes for the local market with only those farmers close to the city growing early potatoes since these could be sold at a high price. The more distant East Lothian farmers grew the bulk of the potatoes sold on the Edinburgh market, but also sent potatoes to cities throughout both Scotland and England.[10] (Figs 55 and 56).

The expansion of the built-up area and stricter sanitary laws resulted in the marked decline in the number of pigs enumerated in the

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10. Scola, P.M. "The land of Britain, Pts. 16-18, The Lothians." The report of the land utilization survey of Britain, London, 1944.

City of Edinburgh Parish in 1906 (Fig. 55). However, the slight increase in the numbers of pigs kept in the suburban parishes counterbalanced this fall, whereas of the more distant parishes only Lasswade with its large local population was important for pig breeding. In 1916 as is indicated in Fig. 56, there was a far greater emphasis on pig keeping in the entire area, reflecting both the large amounts of waste food available, and the needs created by the war-time emergency.

After 1896 market gardens and nursery gardens were no longer included in the Parish Agricultural Returns as special categories, their place being taken by one for all vegetables grown for human consumption, grown on both farms and market gardens. In 1906 (Fig. 55) only the small extensively urbanized parishes had large proportions of their cultivated area under vegetable cultivation. Of these North Leith and South Leith supplied the Edinburgh markets whereas Prestonpans, Dalkeith and Cockpen each had quite significant local markets to supply, but it is most probable that surplus produce from these parishes was sent to the nearby city. The map for 1916 (Fig. 56) indicates a great increase in vegetable cultivation around Edinburgh, again probably in response to the national emergency. This expansion took place mainly to the north and east of the city where the flat land and sandy soils were ideal for intensive vegetable growing.

The pattern of urban expansion at the turn of the century reflected the exodus of middle and upper class families from the compact and in some districts unattractive urban area. With the introduction of both tram and bus services suburban nodes began to emerge around the termini of these services and houses began to be built out along the main roads towards the neighbouring villages. However, these settlements still continued to be the main recipients of the growing number of commuter families, and were expanding very rapidly. As a result the fringe area

was characterised by threads of development which radiated out from the city and almost linked up with the quite striking ring of village nuclei which had become very closely interrelated with Edinburgh.

The distribution of mansion houses with occupants who worked in the city extended over a very wide area, reaching farthest afield in the more scenically attractive yet easily accessible districts.

In contrast to this extensive residential orientation industrial establishments continued to cluster around the edge of the built-up area and were only located in more remote areas when forced to do so by the city authorities.

The institutional concentrations already noted in 1875 continued to be prominent, but had been encroached upon by the expansion of the urban area. In addition, however, numerous new institutions had been established in the rural area between the city and its ring of dormitory satellite villages. The need for training areas during the First World War had been met by the purchase of two estates on the foothills of the Pentlands to the south of the city.

The number of local neighbourhood parks had continued to increase as the city authorities became increasingly aware of their value and these supplemented the larger and often less accessible natural park areas. Sports grounds had also multiplied, but were in most cases located close to the built-up area, whereas the more specialised golfing facilities were more widely dispersed. The resultant pattern of open spaces consisted of a marked inner ring of parks and sports grounds and a more widespread scatter of larger more specialised facilities. Cemeteries were also in two belts, an inner one of older burial grounds and an outer one of those more recently established.

Entertainment facilities were poorly represented in the fringe at this time and were all within easy reach of the urban area.

These land-uses formed the inner fringe zone within which the spread of commuter residences was by far the most significant feature forming a belt around the city within which numerous other urban orientated land-uses had been established, concentrating as would be expected close to the edge of the built-up area.

Beyond this there was an outer zone of market orientated agricultural activity which extended over an area with a radius of six to six and a half miles from central Edinburgh, within which milk, pig, potato and vegetable production was largely destined for the urban market. The importance of this market had begun to decline as can be seen on the maps for 1906 (Fig. 55), but the outbreak of war in 1914 and the need to produce as much food as possible within Great Britain had reversed this trend to a certain extent by 1916.

PART I

Chapter 5

Urban growth between 1918 and 1938

During the inter-war years Edinburgh's built-up area expanded very rapidly as improving transport facilities and higher incomes enabled more and more people to fulfil their desire to live in single houses with gardens, and if at all possible to move out of the city into semi-rural surroundings. In Edinburgh this outward growth was greatly facilitated by the Boundary Extension Act of 1920 (Fig. 2) which brought a large area under the city's administrative control, providing the much needed space for future expansion.

The Act was promoted by Edinburgh when the Lord Provost suggested that "the Town Council should survey the local situation and deal with the problem of reconstruction within the Edinburgh area. According to the Lord Provost the position of Edinburgh before the outbreak of the War, 'had reached a marked periodic stage which made it desirable to have an examination and conspectus of the whole situation in all its ramifications, with a view to determining the broad lines of policy and action for the future. The subject is one which has been ventilated for a number of years past in the press and on the platform in a somewhat fragmentary, detached, and intermittent way, as was inevitable. The war stabilised the position for a period, but with the close of the war and the whole

altered social and material outlook affecting every phase of life, the previous aspiration has become an actual necessity of the moment. The time has come to summarise the position, specially with a view to proper solutions'.

"After due deliberation, the Town Council resolved on the promotion of a Bill for the purpose of incorporating within the city boundaries (1) the Burgh of Leith, (2) the Burgh of Musselburgh, and (3) a suburban area forming part of the County of Midlothian. The Bill also proposed to unify the various Parish Councils and Education Authorities in the areas mentioned; and to transfer to the Town Council the functions of three joint boards viz:- The Edinburgh and District Water Trust, the Edinburgh and Leith Corporation Gas Commission, and the Water of Leith Purification and Sewerage Commission.

"The Bill was plainly a great and momentous undertaking requiring the utmost skill and prudence on the part of the promoters. The following statement, taken from the papers indicates the area, the population at the 1911 census, and the valuation of the city and other areas in question:-

	Acres	Population	Valuation
Edinburgh	10,877	320,318	£3,346,199
Leith	1,517	80,488	607,363
Musselburgh	785	15,938	75,141
Suburban District	22,275	23,814	287,876
Total	35,454	440,558	£4,316,579

"Negotiations with Musselburgh were carried on for a time, but ultimately fell through, with the result that Musselburgh was dropped out of the Bill. An agreement was reached with the County Council for

the incorporation of four parishes viz:- Liberton, Colinton, Corstorphine and Cramond. The Joint Trusts supported the Bill and the issue resolved itself into a revival of the old rivalry between Edinburgh and Leith. Leith was indeed the crux of the problem, and the contest was not limited to the public bodies, but was taken up by the communities of the two towns. A plebiscite was taken in Leith, as a result of which there voted for amalgamation 5,357, against amalgamation 29,891.

"In the year 1896 the Extension Bill of the city had proposed to annexe Leith, but had failed on the case of the promoters, without any evidence being required from Leith. In the interval a quarter of a century had gone by, and there had been developments in public services and changes in other respects. The two towns were no longer distinct and the intervening tract of open country which had separated them was completely covered with buildings, so that in many instances shops and houses were partly on one side of the boundary and partly on the other. Leith had been surrounded on three sides by Edinburgh, and was unable for lack of open ground to provide for the normal growth of its population and industries.....

"The Bill was opposed strongly in Parliament, but passed on 4th August, 1920, and came into operation on 2nd November thereafter. It set out in a schedule the boundaries of what is popularly known as Greater Edinburgh, and this area became the city parish of Edinburgh. The Town Council of Leith and the Joint Trusts were dissolved and their functions transferred to the new and enlarged Town Council of the city."[1]

The annexation of Leith unified the administration of an area which

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1. Edinburgh Corporation "Edinburgh 1329-1929" Oliver and Boyd, Edinburgh, 1929, 228-232

had been a continuous integrated unit for many years, and consequently extended the built-up area of the city north to the Firth of Forth. The only remaining open areas within the former burgh, the grounds of Prospect Bank House and Pirniefield House were sold in 1933 and subsequently developed as housing estates.

Lochend sewage meadows finally ceased to be cultivated in 1921 when they were bought by Edinburgh Corporation and within three years the area had been drained, landscaped and building had commenced on one of the first local authority housing estates in the city; when completed in 1933 this scheme reached south to Restalrig. Meanwhile private houses had been built along the entire length of Portobello Road, and had begun to spread northwards over the area formerly occupied by Craigentinny Meadows. The golf course at Craigentinny was acquired by the Corporation in 1925 and opened as a municipal course; in 1933 it was extended after the remaining portion of old irrigation meadows was purchased by the City. The area south of the golf course was disposed of by the Corporation to private builders and the houses subsequently erected joined up with those along Portobello Road. However, as early as 1927 Portobello had ceased to form part of the fringe, since housing developments along Portotello Road had physically linked the city and its resort suburb for the first time.

The ribbon of tenements which had reached east from Abbeyhill to Jock's Lodge became part of the urban area in the early 1920's after the construction of houses along the south side of London Road. To the south of Jock's Lodge the slopes of Whinny Hill were sold in small lots to private house builders, and the development of this area gradually extended the built-up area southwards between 1929 and 1939. Meanwhile the Corporation had bought and partially developed a large part of Northfield farm which lay between Jock's Lodge and Portobello, and in

doing so surrounded the playing fields, cemetery and nursery at Northfield.

The area south of the main east coast railway at Portobello had been developed as a large bungalow estate which formed an extensive projection of Edinburgh's built-up area.

The Royal Park continued to act as a barrier to the eastward spread of the city and only to the south over the grounds of Prestonfield House had a limited amount of private and local authority housing expansion taken place. These developments occupied the area to the east of the tenements along Dalkeith Road drawing them into the city along with Newington Cemetery which had been surrounded by the houses erected along Lady Road.

With the erection of houses along West Savile Terrace, Macdowall Road and Ross Gardens after 1924, the suburban railway ceased to act as the boundary of the built-up area in the Newington district. These houses spread west to link up with the tenements on Blackford Avenue and Ladysmith Road on the slopes of Blackford Hill, drawing them into the built-up area by 1928. Meanwhile the golf course at Blackford had been sold and the area developed as a convalescent home, and this ceased to form part of the fringe when houses were built to the south of the railway along Cluny Gardens between 1924 and 1930.

Blackford Hill restricted the southward expansion of the city and this accounts for the quite rapid growth of Morningside and Greenbank over the area between the Braid Hills and the Craiglockhart Hills. The steep sided Braid Burn valley was opened as a public park, but this was eventually surrounded when houses were built on the northern part of the Comiston Estate between 1936 and 1938.

On the northern slopes of the Craiglockhart Hills an extensive bungalow development had by 1937 reached west to Redford and north to Slateford

where it linked up with the local authority housing estates built at Chesser and Hutchison during the 1920's and in doing so enclosed within the urban area the open space formed by the Corporation and University playing fields at Meggetland.

The completion of the Chesser estate brought the old industrial village of Delhaig within the built-up area, while to the north the local authority houses built at Stevenson between 1931 and 1933 along with those on the area formerly occupied by the municipal golf course at Saughton and the commencement of the large Stenhouse estate in 1933 brought Saughton Park into the city.

On the north side of the Edinburgh to Glasgow railway house building was resumed at Saughtonhall in 1923, the northern section being developed by private contractors and the southern by the local authority. This large residential area was completed in 1933,and when it linked up with the private housing estate developed two years later on the north side of Corstorphine Road at Belmont, the wedge of fringe land uses formed by Roseburn Park, Murrayfield Sports Stadium and the large houses on the Ellersley Road, ceased to form part of the Fringe.

Edinburgh Corporation as trustees for the lands of Blinkbonny and Dean Park, which had formerly belonged to Heriot's Hospital, subdivided them into small lots for sale to private house builders. Development began in these districts in 1923 and by 1938 houses had been erected over the entire area west to the Barnton railway line. The eastward spread of houses over Dean Park acted in conjunction with the westward expansion of Learmonth area in a pincer movement and had by 1937 surrounded the institutional complex at Dean.

Adjacent to Craigleith Station on the suburban railway line to Barnton, Blackhall began to emerge as a large residential district, as house lots to the west and north were feued to private house developers after 1924. However, it was only in 1934, when the houses at Blinkbonny

became continuous with those built around Craigleith Quarry after 1930, that the suburb of Blackhall became part of the built-up area. Meanwhile however, bungalow development had reached north west to Davidson's Mains, but the village retained its individuality until 1936 when part of the Lauriston estate was sold for house building purposes.

The extensive wedge of fringe land-uses located between Edinburgh and Leith had been divided into two parts at an early date by the single row of houses along Inverleith Row. However it was not until 1933 when these houses were joined by those built on the grounds of Warriston House that Inverleith Row became sufficiently developed to form the inner boundary of the fringe, enclosing within the urban area the recreation areas, parks, cemeteries and nurseries to the east.

Trinity and Newhaven had become part of the urban area along with Leith in 1920 and continued to expand when the Corporation released the area to the west to private developers in 1927. This estate was completed by 1932 by which time the demand for local authority houses in the city had become so great that 271 acres of agricultural land west of the railway line at Pilton were purchased by the Town Council, and within five years a very large housing estate had been built.

This period was one of very rapid and extensive urban growth resulting from improved transport facilities, increased affluence and changing social standards which prompted many families to move out from the crowded city centre. The provision of local authority houses for those people unable to afford to buy a home of their own was another important factor. As would be expected the main transport routeways, both road and rail, formed the main lines of urban expansion. The resultant star shaped urban area reached east to Portobello, south to Greenbank along the Braid Burn valley, south west over the flanks of the Craiglockhart

Hills, west to Saughtonhall, north west to Lauriston Castle and west along the shores of the Firth of Forth to Pilton. (Fig. 58), a pattern which characterised the "laissez faire" approach to planning control, since there was no overall city plan or rationalising body to guide urban growth.

PART II

Chapter 5

The rural-urban fringe of Edinburgh in 1938

The inter-war period was one of very rapid growth for the suburban residential areas around Edinburgh as can be seen on Table 5. Expansion in these districts took three main forms, ribbon developments along roads, large suburban communities which had grown up around old village nuclei, and large private and local authority housing estates isolated from the built-up area.

As is shown on Fig. 59 several short rows of houses interlaced the area between Duddingston and Portobello. The largest of these extended along Duddingston Road West as far as Duddingston Village, but this old settlement itself remained largely unchanged despite the proximity of the advancing city.

Liberton had emerged as a large residential suburb with the houses on Liberton Brae forming a triangle whose apex pointed northwards to the city. The fringe position of the district was preserved by the incomplete villa development along Gordon Terrace, Ross Road and Blackbarony Road which reach south towards the foot of Liberton Brae. Liberton owed much to its attractive position overlooking the city, the absence of any industrial activity and the accessibility provided by the tramway which was extended as far as Liberton Dams in 1924, and to the top of Liberton Brae the following year. In contrast to most other suburban

TABLE 5

The population of the suburban parishes of Edinburgh 1851-1931+

	Duddingston	Liberton	Colinton	Currie	Corstorphine	Cramond
1851	4,401	3,528	2,676	2,190	1,499	2,444
1861	5,159	3,507	2,656	2,248	1,579	2,459
1871	6,369	3,791	3,644	2,360	1,788	2,666
1881	7,380	4,951	4,347	2,390	2,156	2,655
1891	9,643	6,229	4,549	2,574	2,233	2,633
1901	12,037	7,233	5,499	2,513	2,725	2,722
1911	16,762	8,361	6,664	2,526	3,870	3,763
1921	18,680*	9,266*	8,325*	2,555*	4,410*	4,078*
1931	26,145	10,901	8,438	3,261	7,381	5,631

* Incorporated within the City of Edinburgh in 1920

+ Census of Scotland.

districts around Edinburgh, the opening of the tramway to Liberton preceded much of the residential development and no doubt contributed much to subsequent expansion, a clear indication of the corporation fostering suburban growth. On the south side of the compact community which had grown up around the old village by 1938, rows of bungalows lined the roads, threading between the adjacent farms. This pattern was characteristic of the initial stages of urban growth during this period when personal mobility was increasing in response to greater affluence, but without strictly enforced planning controls.

Another ribbon of urban development stretched southwards along Moredun Road between Northfield and Gilmerton.

On the eastern slopes of Blackford Hill Observatory Road formed a small fringe extension as did the houses along Braid Farm Road on the south side of the Hermitage of Braid.

However in contrast to this feathered pattern of fringe growth characteristic of the south eastern districts of Edinburgh, the built-up area to the south-west and west were very compact and almost devoid of any short ribbon features. Only to the north-west along Queensferry Road between Davidson's Mains and Cramond Bridge was there a fringe tentacle. In addition the large villas on Barnton Avenue although they were continuous with Davidson's Mains had preserved their fringe character by virtue of their spacious layout.

The only other area where ribbon growth was to be found was at Inverleith, where the houses along Inverleith Place and Kinnear Road reached out into the adjacent playing fields, parks and market gardens.

Each of these housing areas was characterised by the proximity of a public transport service into the city; train, Corporation tram or bus and the S.M.T. Company bus services, supplemented by increasing car ownership.

However, although numerous urban ribbons had emerged most people moving out chose to live in the new houses being built in and around the adjacent villages. Duddingston and Liberton have already been mentioned as having grown considerably, and in both cases the surrounding areas had also been extensively developed for residential purposes.

South of the urban extension which reached as far as Braid, Greenbank and Comiston, a fringe community had grown up around the Fairmilehead crossroads. This suburb had come into existence as long ribbons of houses along the main roads, but as access to the city improved (the tramway was extended to Fairmilehead in 1936) and the beauty of the district was recognised, more and more houses were built there, resulting in a compact bungalow and villa suburb with ribbons of houses stretching

out from it.

The Colinton district had also grown considerably and its prominent dormitory function had been of great importance in the inauguration of a bus service, which acted as a feeder service to the tram terminus at Craiglockhart as soon as the village became part of Edinburgh in 1920. New housing developments spread south from the village towards the Pentland Hills and north over the old Hailes Estate. With the increase in the number of commuters it was decided in 1926 that the tramway should be extended to Colinton village. The completion of the housing estates at both Spylaw and Hailes and the isolated group of bungalows at Kingsknowe formed a large suburban residential area which linked Colinton and Juniper Green. The latter village had expanded eastwards towards the city and as the number of commuters increased a Corporation bus service via Slateford was begun in 1920, but after the extension of the tram service to Colinton this bus route was altered to run via the tram terminus. It should be pointed out that during this period Edinburgh Corporation regarded the bus services as being secondary to the existing tram routeways.

As mobility increased and the pull of the countryside became greater more and more people moved out to the villages along the Water of Leith. Currie was the first to bear witness to this increasing urban influence, with the construction of houses along both sides of the Lanark Road. The linear form of the village was preserved by the private bungalow development at its east and west ends and the Mid-Lothian County Council estate adjacent to the old village nucleus. The resultant increase in the village population to approximately 1,000 in 1938 could not be accounted for by expanding local industries and consequently must reflect the growth of Currie's dormitory function. Almost all of the new bungalow dwellers and a large proportion of those who rented County Council houses must have

worked in Edinburgh. Commuting from this district to Edinburgh was great enough in 1920 to warrant the operation of a private bus service between Balerno and the city via Currie. This service supplemented the railway which also ran to Balerno. In 1933 as D. S. Barrie noted the railway company operated "about twenty trains in each direction on weekdays between Princes Street and Balerno and nine each way on Sundays during the summer months only: the journey time for the 7½ miles is twenty-five minutes."[1] The new bus company continued to operate until 1930 when the S.M.T. Company took over the service.

The construction of bungalows and villas along the main road west of Currie, had by the early 1930's almost linked the village of Balerno to Edinburgh. The development of a large County Council housing estate in Balerno followed by a bungalow estate of nearly one hundred dwellings reflected in part the proximity of the city since according to a local resident who had bought one of the bungalows when it was new, almost all of the people living in the private estate worked in the City, whereas the majority of those living in the County Council scheme were employed locally. Transport access to the city has already been mentioned in the discussion of Currie.

The village of Corstorphine had been transformed into an extremely large suburban community as a result of a period of intense building activity which began in 1924. The first houses were built north and east as far as the Zoological Park over the slopes of Corstorphine Hill. Along with Corstorphine Hospital the zoo acted as a barrier to the easterly expansion of this suburb forcing new developments westward along Craigs Road and Glasgow Road; beyond this expansion an isolated cluster

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1. Barrie, D.S. "From Edinburgh to Balerno" The Railway Magazine, Vol. 76, No. 451, Jan 1935, 25-27, 26.

of houses had been built at Maybury. Meanwhile there had been little building on the low lying damp area on the south side of the village, and it was the late 1930's before houses were built at Carrick Knowe. This estate, like those at Sighthill and Colinton Mains, the last two mentioned were isolated housing developments, were built at the suggestion of Edinburgh Corporation who recognised the need to provide houses for those middle class families who could not afford to purchase homes of their own, but who, on the other hand, did not qualify for or want to move into a local authority scheme. The development of these schemes was made possible by loans granted by Edinburgh Corporation. The conditions of these loans were that the houses should be rented for a period of twenty years, after which time they could be sold to the sitting tenant or to any new occupant. However, the entire estate could be sold prior to the expiry of this period if so desired. At Carrick Knowe MacTaggart and Meikel built 1,150 houses between 1935 and 1940. Starting at the same time A. Thain Ltd. took four years to complete 500 flatted houses at Sighthill. In this estate the feu duty for each house, paid to the Corporation, was fifteen shillings per annum, which rose to £3 when the houses were put up for sale after twenty years. During the same years MacTaggart and Meikel developed another isolated estate of 950 homes at Colinton Mains with the aid of money loaned by the Town Council.

As can be seen on Fig. 59 the whole suburb of Corstorphine was linked to the city's built-up area, but its fringe classification was preserved by the Edinburgh to Glasgow railway line which separated it from the housing estate at Sighthill, the only link being across a narrow footbridge over the railway. Until 1933 when the tramway was extended from Murrayfield the suburban railway and the S.M.T. Co. bus services

provided transport between Edinburgh and Corstorphine.

Cramond's residential and resort function had developed so much that a Corporation bus service was inaugurated in 1920. However, despite this improved access, the character of the village remained unspoiled since only a small number of new houses were built there between 1918 and 1938.

During the inter-war years radical changes in social attitudes drew much attention to the plight of the working people. Many nineteenth century housing areas, especially those located in industrial districts, had degenerated into slums and it was realised that the people living in these districts would never be able to afford to buy a house of their own, no matter how much they wanted to improve their housing conditions. As a result the Government both advised and encouraged local authorities to build housing estates in which these people could be provided with better homes. Since working class families could not afford large weekly travel expenses every effort was made to locate these new housing schemes close to the built-up area, but due to problems of land purchase this was not always possible. One of the largest peripheral schemes was begun in 1926 adjacent to the brewery complex at Craigmillar and by 1939 this housing area had spread east to Niddrie. This estate was not specifically built to house people working in the local industries, which meant that most of the people living at Craigmillar had to travel into Edinburgh to work. To facilitate this movement a corporation bus services was introduced as soon as the first families moved into the area; the suburban railway offered an alternative form of transport into the city. Another isolated local authority estate was developed at Sighthill alongside the houses built there by A. Thain Ltd., and this area was also provided with a bus service into Edinburgh. At Longstone, West Pilton and Drylaw there were smaller groups of houses which represented the initial stages

of much larger corporation schemes.

Beyond this ring of communities there were several towns and villages which could not be included within the fringe area either because of thriving local industries or some feature which made them unattractive as dormitory settlements.

With the eastward expansion of Portobello the adjacent town of Musselburgh had almost become continuous with Edinburgh. It was therefore necessary to study the Burgh to determine the extent of its links with the adjacent city. As has already been noted in chapter four the expansion of the wire and paper industries resulted in a rapid increase in the town's population between 1891 and 1921. This was followed by a period of stability as can be seen on table 6.

TABLE 6

The Population of Musselburgh 1891-1931*

1891	7,880
1901	11,711
1911	15,938
1921	17,110
1931	17,007
1951	17,010

*Census of Scotland.

The static population in the post 1921 period was largely due to the fact that local industry did not expand and to the inability of the town to attract new industries. This in part reflected the proximity of Edinburgh

which was a much more attractive centre for new firms because of its large and varied labour force and its wide range of social and economic facilities. However, despite this competition the established industries in Musselburgh were able to maintain a constant level of employment which would seem to indicate that there was not too great a commuter movement from the town into Edinburgh, and that the people without work tended to move away from the town. The growing demand for transport between the two burghs resulted in the linking of their tramway systems and the operation of a regular bus service between them by the S.M.T. Co. On the basis of this information and the absence of detailed commuter information there is not sufficient specific evidence to include Musselburgh within Edinburgh's fringe area, but the ties between the two towns would appear to be increasing.

Newcraighall and Gilmerton were both interesting anomalies, since they had been incorporated within Edinburgh's administrative area in 1920 yet they remained almost completely unaffected by the proximity of the city. This was due mainly to the fact that the local mines employed almost the entire labour forces of each village, and this industry had made these communities unattractive as suburban dormitory settlements. Consequently, despite the fact that both Newcraighall and Gilmerton paid rates to Edinburgh Corporation, received water, gas and other services from the city, and in the case of Newcraighall, was also served by a Corporation bus service, they remained apart from Edinburgh in almost every other aspect of their everyday life and could therefore not be included as part of the city's rural-urban fringe.

To the south of Edinburgh the Burgh of Loanhead, like Newcraighall and Gilmerton, had grown up around a local coal mine and as this continued to be the town's main industry links with the city were not well developed despite the physical proximity of the two towns.

The villages of Ratho, Newbridge and Kirkliston to the west of the city were small agricultural communities and local service centres. Commuting had not begun to influence them and apart from Edinburgh's role as the regional shopping, service and entertainment centre, there was little interaction between these settlements and the city.

After 1920 the employment information recorded in the Valuation Rolls was less comprehensive than before and this greatly reduced their value as a means of analysing both the villages and the surrounding mansion houses. Consequently it was felt that the information given could no longer be used for these purposes.

As the built-up area expanded many of the former fringe industrial premises were drawn into the city, such as those adjacent to the Water of Leith downstream from Saughton and several of the factory concentrations located around rail termini. This meant that the tannery at Stenhouse, the laundries, corn market, cattle market and slaughterhouse at Slateford and the corn mills, paper mills and tannery on the Water of Leith between Colinton and Balerno were the only remaining fringe industries beside the river. The importance of the railway system in the location of industry continued to be apparent, for despite the fact that the largest, that at Gorgie-Dalry, had been surrounded, those at Craigmillar, St. Leonard's, Pilton and Granton continued to form part of the fringe area (Fig. 60).

A new feature of the urban industrial pattern was the appearance of road orientated factories scattered around the edge of the built-up area where suitable land was available. Two such firms were established at Corstorphine, one making brass fittings, the other corrugated packing cases; a shoe factory had been opened at Moredun, a bakery at Peffermill; and an ice-cream factory at Craigmillar (Fig. 60). These firms had almost complete freedom of location because they manufactured small bulk products easily transported by road and did not have to comply with

rigidly enforced planning restrictions.

The distribution of institutions, as can be seen on Figs 61 and 62, was characterised by several large groupings which had emerged over the years. These formed extensive wedges of fringe land uses, around which tentacles of urban growth had begun to expand. The Inverleith district where Fettes College, a small nursing home, Leith General Hospital and the enlarged City Poor House, now a general hospital, were located formed one complex, but the Consumption Hospital at Comely Bank had been drawn into the urban area. At Corstorphine, and Morningside-Craiglockhart there had been no change in the constituent institutions. The Edinburgh Hydropathic at Craiglockhart had closed down, but its buildings and grounds had been taken over and re-opened as the Convent of the Sacred Heart, a training college for Roman Catholic women teachers. To the south west of these institutions the Old Soldiers' Home, Merchiston Castle School and Woodfield Convent continued to form part of the fringe area. The group of institutions to the south of Liberton had grown considerably with the location there of Liberton Hospital, Kingston Clinic, Moredun Nursing Home and the Animal Diseases Research Laboratory. A new cluster of institutions had emerged at Corstorphine where the Hospital and Children's Home were joined by a new home for children at Hillwood House. There were also several isolated instututions around the city, the prison at Saughton, the new children's hospital at Frogston Road, the library centre at Lauriston Castle, the new mental hospital at Gogarburn, the Trefoil School for Physically Handicapped Children at Gogar and the Dr. Barnardo's Home for children at Balerno.

The expansion of the University of Edinburgh, especially the Science Faculty, meant that the Old College could no longer provide adequate facilities either for teaching or for research. However, as it proved

impossible to expand in the city centre it was decided that a new science campus should be developed on the outskirts of the city at West Mains.

During the inter-war years there was a rapid expansion in the number and variety of research institutions around Edinburgh. The Animal Diseases Research Laboratory at Moredun has already been mentioned; others were the seed and plant breeding station at East Craigs and the experimental farm at Boghall belonging to the East of Scotland College of Agriculture.

The Military barracks and training areas at Redford and Dreghorn continued to form part of the fringe in 1938, but the older parade grounds at Holyrood and Duddingston, although still within the rural-urban fringe, were no longer used by the army (Fig. 63).

Parks could be subdivided into two different categories at this period, those carefully landscaped open-spaces within easy reach of the city's residential areas, and the much larger areas, often left in their natural state, which served the city as a whole. Neighbourhood parks were to be found all around the edge of the built-up area at Portobello, Craigmillar, Liberton, Redhall, Corstorphine, Murrayfield, Inverleith and Granton, as can be seen on Fig. 64. The largest of the "city parks" was the Royal Park, an extensive hill mass almost completely surrounded by the built-up area. In 1926, in order to preserve the amenity and beauty of Duddingston Loch, this water body and the surrounding area was bought by the Crown and designated a bird sanctuary, and was amalgamated with the Royal Park a year later. Blackford Hill formed another large park whose natural beauty added greatly to the attractiveness of the adjacent residential districts, and this was greatly enhanced by the presentation of the Hermitage of Braid to the city in 1938 on the understanding that it would be preserved as a public park. The use made of the Braid Hills as both a park and a municipal golf course led the

Corporation to purchase part of an adjacent farm in 1926 so that a second golf course could be laid out. The extension of the tram service to Fairmilehead in 1936 not only allowed the increasing suburban population living in this area easy access to the city, but also brought the Pentland Hills within easy reach of the people living in Edinburgh. The increasing use being made of this area for recreational purposes was reflected in the opening of Hillend Park on the north eastern slopes of these hills in 1922 and the park at Bonaly a few years later. The crest of Corstorphine Hill, bought by the city in several transactions between 1933 and 1937, formed another large park, a grass and tree covered area with beautiful views over the surrounding districts. The last of the larger parks occupied the grounds of Lauriston Castle, a secluded area of wooded parkland adjacent to the urban area at Davidson's Mains (Fig. 64).

Playing fields were in most instances located very close to the edge of the built-up area (Fig. 64). The sports ground at Park Road, the tennis courts at Craiglockhart, and the Grange Cricket ground at Inverleith belonged to private clubs, whereas the sports grounds at Peffermill, Craiglockhart and Inverleith were used by schools and colleges, and the facilities at Portobello, Saughton, Stenhouse and Murrayfield had been laid out by the Corporation for use by local authority schools and municipal clubs.

Several new golf courses had been established, some to meet the growing demand for golfing facilities, others to replace courses displaced by the expansion of the urban area. In 1919 when Edinburgh Corporation bought the ladies' golf course at Blackford and built the Astley Ainslie Convalescent Home the club members began to search for a new course. With this in mind the Dalmahoy estate was acquired and part of it was converted into a ladies' golf course in 1922; five years

later another course was opened and men were invited to join the club. The conversion of mansion house grounds into golf courses has been common around Edinburgh, and in the case of Dalmahoy this was suggested as "perhaps the best fate that can befall a great estate on the fringe of urban expansion."[2] Similarly the Ratho Park Golf Club, established in 1928, had a membership primarily made up of former members of the Corstorphine Hill Club which had been displaced by the Zoological Park in 1913. The time lapse between these two dates was due to the difficulties experienced by the club in finding a suitable area to convert into their new course. New golf clubs were established at Prestonfield (1921), Liberton (1926) and Ingliston (1934) (Fig. 64). The latter formed part of an old estate, the grounds of which were used as a golf course while the house had been converted into an hotel. Dalmahoy, Ratho Park and Ingliston were all quite distant from Edinburgh and the fact that the majority of their members came from the city was indicative not only of the demand for golfing facilities, but also of the extent to which transport media had improved.

The Royal Botanical Gardens at Inverleith and the Zoological Park at Corstorphine were the only examples of organised fringe entertainment land-uses (Fig. 65).

The expansion of the built-up area between 1918 and 1938 had surrounded many of the peripheral cemeteries, leaving only those at Portobello, Mount Vernon, Liberton, Saughton and Corstorphine as part of the fringe area.

The increasing water requirements of the city had necessitated the construction of several reservoirs in the Pentland Hills, and those

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2. Finlay, I. "The Lothians", Collins, London, 1960, 48

located in the north close to Edinburgh were also used for fishing and their surrounding paths for country walks. Consequently these reservoirs along with the filter beds at Liberton and Fairmilehead should be included within the city's rural-urban fringe.

Two new agricultural land uses became increasingly important during the inter-war years, allotments and small holdings. The 1887 Allotments Act introduced this land use for the first time, but it was not until the Small Holdings and Allotments Act, 1908, that the real foundations of the movement were laid. The First World War provided an added stimulus, since as much food as possible had to be grown in Britain. To meet this emergency several parks in Edinburgh were divided into small plots and rented out to citizens for cultivation. After the war these parks reverted to their former use, leaving little evidence of their temporary status. However, there was a movement to have new allotment areas provided. In an Act passed in 1922 an allotment was defined as any parcel of land, whether or not it is attached to a cottage, of not more than two acres, held by a tenant under a landlord and cultivated as a farm or garden, or partly both. In practice, the Edinburgh allotments do not exceed a quarter of an acre in area and are technically called "Allotment Gardens", but these units for simplicity, can be referred to as allotments. These may be on land owned by the local authority, on land which is owned privately by individuals or by a private company such as British Rail. Land may be designated permanently as allotments, under present planning legislation, or may be statutory, that is, being situated on land owned by the Allotments Committee of the local authority. Temporary sites may be found on land owned by another committee of the Local Authority, for example the Education or Housing Committee, who may if need be, take over the land at a later date for

its original purpose. In Edinburgh allotments were located on land belonging to railway companies and other private companies in addition to that owned by the Council. Of these, only those at Northfield, Liberton, West Mains Road, Blackford Hill and Pilton formed part of the fringe in 1938. (Fig. 66).

Small holdings on the other hand were areas of land owned or bought by the Department of Agriculture which were subdivided into holdings of up to ten acres and rented out to indivuduals. This formed part of the Land Settlement Policy which had come into being soon after 1900, but had not been actively pursued until the inter-war years. These holdings were created to provide land for people interested in farming, often ex-servicemen who were not able to buy land of their own and who could not afford the expense involved in operating a full-sized farm. The small area of these holdings meant that normal farming practices were not economic, necessitating specialisation to make the best use of the land and to take advantage of local market potential. Proximity to a large city was naturally regarded as one of the best locations for a group of holdings since the nearby urban market would provide a ready outlet for any milk, pigs, poultry, eggs, vegetables, nursery products or fruit produced. Three groups of holdings were established close to Edinburgh during this period, at Turnhouse, Wester Hailes and Loanhead (Fig. 66).

During the inter-war years several factors began to exert a far greater influence on agricultural activities in Great Britain. Vastly improved road transport supplemented rail facilities in enabling produce to be carried long distances in a short time; the introduction of national marketing schemes for agricultural goods opened up much wider markets for specialised production and improved technology, especially the widespread introduction of freezing and canning, provided an additional outlet for

farm produce.

The numbers of milk cows in each parish and the proportion of milk cows to all cattle in 1926 show, as can be seen on Fig. 67, that the parishes with a marked concentration on milk cows included the built-up area of Edinburgh, all of the suburban parishes except Cramond, and several other adjacent parishes. Ten years later, however, the pattern was radically different, due to a marked decline in the importance of milk cows in all the parishes apart from the urban parishes of Edinburgh and Leith (Fig. 68). Writing in 1933 T. Young described the contemporary dairying situation in Edinburgh noting that "there is a system of town dairying where the cows are housed throughout the year and the dairymen have to purchase all the food requirements for their stock. Originally it would appear that the system was started or encouraged by the local brewers because it provided an outlet for their wet grain. To this day these grains provide a large proportion of the diet of the town cows. The material is carted from the breweries three times a week and stored in a concrete pit, the general opinion being that the best results are got when it is fresh.

"For supplies of roots, grass and straw the dairymen have working arrangements with the suburban farmers.

"It is recorded that Craigentinny Meadows, near Edinburgh, have given as many as 5 cuts. per season and have yielded over 50 tons of green fodder per acre. In summer the farmer makes the dairyman's surplus into hay.

"Straw is purchased from the local farmers and the manure is sold to farmers or market gardeners. Manure sells at 4/- per ton.

"The town dairy system is on the decline; its place is being taken by the entry of the suburban farms into the dairy business and by the

introduction of milk from considerable distances by the local marketing concerns, the largest of which is run by the co-operative society."[3]

P. M. Scola writing in 1938 mentions the decline in the importance of dairy farming in the Lothians. "While the number of dairy cattle kept in West Lothian and Midlothian west of the Pentlands is considerable, it scarcely compares with the very high densities of Ayrshire, because much of the land can be more profitably employed in producing market crops and perhaps too because the local market for milk is smaller. A certain number of dairy cows are still kept in urban or suburban districts of Edinburgh and Leith."[4]

On the other hand the potato crop continued to be of great importance in the local farm economies as is indicated by Figs. 67 and 68. In 1926 the parishes around Edinburgh were prominent, even within the extensive coastal area where growing conditions were favourable, and ten years later there had been little change. This was also noted by Scola who recorded that this was due to the fact that "many farmers especially near Edinburgh, being loath to miss the high prices for potatoes early in the season, have adopted the practice of lifting tubers before they have fully matured. Epicures and other early varieties are cultivated on the warmest soils near North Berwick and in the district east of Edinburgh."[5]

The same author noted that there was "a fair density (of pigs) in the Inveresk-Aberlady market gardening zone where 'broke' potatoes and vegetables formed part of the feed. The greatest concentration is to be found, however, west and south west of Edinburgh as far as the middle

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3. Young, T. "The agriculture of the Lothians" Agricultural Progress, The Journal of the Agricultural Education Society, Vox X, 1933,45-54, 47-48.
4. Scola, P.M. "The land of Britain", Pts. 16-18, The Lothians" The report of the land utilization survey of Britain, London, 1944, 164.
5. ibid., 154.

Almond. Specialist pig keepers obtain hotel, restaurant and household scraps from the city which (after they have been boiled and fat removed) are given to the animals. The porcine predilection for a varied diet is not very easily gratified at a distance from Edinburgh, and away from its vicinity there are very few pigs."[6] Figs 67 and 68 for 1926 and 1936 illustrate the extent to which these processes have influenced the distributio of pigs around the city.

The proportion of the total cultivated area under vegetables for human consumption in 1926 is shown on fig. 67 and this indicates that there had been a decline in the importance of these crops in all parishes except Prestonpans, Edinburgh and Inveresk. By 1936 (Fig. 68) the foci of market gardening had moved east to centre on the parishes of Prestonpans, Inveresk and Tranent. However, it must be pointed out that in Inveresk and Tranent 3 to 6 per cent of the total cultivated area represented a large acreage of vegetables. An explanation of the reasons for the importance of market gardening in this area was given by Scola. "The pre-eminence of the Lothians in the cultivation of vegetables is historically explicable in terms of favourable soils and climate in the coastal region round the borders of Midlothian and East Lothian. The availability of labour is a factor the importance of which it is difficult to assess, but the proximity of a large urban centre, with its considerable floating population as a casual labour pool, and the presence in the Midlothian-East Lothian border region of a number of coal miners, whose womenfolk would not be averse to supplementing the bread-winners' wages by undertaking agricultural work, are circumstances which cannot

6. Ibid., 168.

be overlooked. Horticulture was encouraged and facilitated by the construction of the railway from Newcastle to Edinburgh and Glasgow and by the shortening of the route between Edinburgh, Dundee and Aberdeen. At the present time produce from the raised beach lands not only satisfies the local demand, but is marketed as far away as Newcastle, Aberdeen and Glasgow."[7]

In his article on the Lothians T. Young[8] made reference to another way in which Edinburgh made its influence felt throughout the adjacent agricultural area. Where proximity allowed it, manure was carted out from the city, and this raised the annual rental of the land about £1 above the same quality of land which was not able to benefit from this source of manure. Unfortunately he gave no indication of the areas to which manure was taken, but it can be assumed that farmers in the suburban and adjacent parishes would be quick to take advantage of this opportunity to improve their land.

This analysis of the orientation of the agricultural economy of the area around Edinburgh has established that towards the end of the 1930's only the suburban parishes of Cramond, Corstorphine, Colinton, Liberton, Newton and Inveresk were all strongly linked to the city as a market for their milk and vegetables, and that several other parishes especially those to the west and south west had large numbers of pigs which were fed mainly on waste food acquired in the city.

The star shaped pattern of residential expansion was the most striking feature of Edinburgh's rural-urban fringe in 1938. The apices of this outward growth corresponded in the most instances to the major roads leading into the city and had in some districts reached out as far

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7. Scola, P.M. op. cit., 177
8. Young, T., op. cit., 53.

as and occasionally had overstepped the considerably expanded suburban communities, which had grown up around the old village nuclei.

This form of ribbon development had taken place to the east of Edinburgh at Duddingston, south beyond Liberton and Fairmilehead, south west as far as Balerno, west to Maybury and north west to Cramond Brig. Of the adjacent dormitory villages only Cramond had remained largely unchanged during this period.

In addition to this finger-like urban-fringe expansion there were several large housing estates isolated from the urban area and located in the interstices of open country which penetrated in towards the heart of the city. These estates represented the active role that the town Council had come to play in the provision of houses for both the working and middle class families living in Edinburgh. Fully developed residential areas were to be found at Colinton Mains, Sighthill and Carrick Knowe and the first houses of new estates had been built at Pilton and Drylaw.

In contrast to the extensive residential sprawl found in 1938 the industrial component of the fringe was much smaller. Only a few of the factories beside the Water of Leith and several peripheral railway yards had not yet been drawn into the urban area. These had, however, been supplemented by several light industrial firms which had built factories on the main roads into the city.

The very extensive wedges of institutions formed very striking features of the fringe area occupying in many instances the area between the fingers of urban and fringe housing expansion.

The increased number of parks in peripheral locations could be divided into two belts around the city, one adjacent to the urban area comprising neighbourhood parks and the other a more distant ring of larger open-spaces.

Playing fields, like the neighbourhood parks, were concentrated close to the city whereas golfing facilities were far more widely scattered often several miles from the city centre.

Entertainment and specialised recreational areas had not yet become important fringe land uses, but as leisure time increased newer facilities like a rifle range and yacht club had been established, but these were never far from the built-up area.

As can be seen on Fig. 69 the inner zone of the fringe had expanded, forming an area of quite marked urbanization, and for the first time in the period under investigation in this thesis reached out beyond the zone of Edinburgh-dominated agricultural activity. This inner-fringe belt was made up of two quite clearly recognizable rings of urban-orientated land-uses, an inner zone adjoining the urban area in which houses, industry, institutions and parks were present in large numbers and an outer zone within which there was a widespread scatter of these land-uses surrounded by increasing amounts of agricultural land.

Agriculture in general appeared to be less dependent on the nearby urban market, since only a few adjacent parishes concentrated on milk, potatoes and vegetable production. Pig keeping, on the other hand, was common throughout a wide area around the city. This meant that the outer fringe area had been considerably reduced and had in fact ceased to form a separately identifiable fringe belt in the districts to the west and south west of Edinburgh.

PART I

Chapter 6

Urban growth between 1938 and 1967

The declaration of war in 1939 brought all house building in Edinburgh to a halt which meant that by 1944, after five years of inactivity, there was a great shortage of houses. In an attempt to alleviate this situation a temporary housing programme, "prefab", was undertaken by the Corporation, with developments on fifteen different sites within the city boundary. between 1944 and 1948.

Northfield and Joppa were two of the first estates to be built, but both were located adjacent to the built-up area. The developments at Southfield, Green Dykes and Craigmillar on the other hand were isolated from the city and consequently formed part of the fringe area, as did the 1,263 houses erected in 1947 and 1948 at Moredun, Fernieside, Hyvot's Bank and South House, on the south side of the city. Another small "prefab" scheme of 123 houses was developed at Colinton Mains. South west of the city on land temporarily acquired by the Council at Longstone there was a small group of temporary houses, while to the west at Sighthill the largest single grouping, 537 houses, had been developed. The remaining sites, at Saughton Mains, 158 houses; West Pilton 364 houses, and Muirhouse 393 houses each formed a continuation of the built-up area.

Lack of capital and a shortage of materials postponed the resumption of local authority house building until 1950, and private building until

1953. Meanwhile the policies of the Town and Country Planning Act 1947, had been brought into operation, placing strict controls on the outward spread of houses.

The Council estate at Northfield was begun again in 1950 and had soon extended south to the Figgate Burn where it joined up with the private houses on Duddingston Road, and in doing so enclosed the open space wedge on either side of the burn. Between 1953 and 1955 the construction of houses along Meadowfield Terrace had drawn the ribbon of villas along Duddingston Road West into the urban area and with the development of the area to the north a few years later, almost all of the remaining open space on the eastern slopes of Arthur's Seat was occupied. A further extension of the built-up area took place at Woodlands, on the north east corner of the old Duddingston estate, where a private housing area was developed in 1961 and 1962.

The completion of the Council house scheme at Bingham in 1956 had far reaching effects since it not only drew the temporary housing area at Southfield into the urban area, but also the whole complex of estates at Craigmillar. To the east of Bingham, Portobello Park lost its fringe character in 1957 when the Magdalene housing estate was begun.

The southern suburbs received their first influx of Council house tenants with the development of temporary housing areas and these were followed by the large housing estate constructed at the Inch between 1950 and 1955. These houses linked up with the private houses built on Liberton Brae, and as villas were built on the vacant lots on Hallhead Road, Ross Road and Blackbarony Road, a narrow point of continuity was established with the urban area drawing the rapidly expanding residential districts of Liberton and Inch into the built-up area. Moredun and Fernieside, which had been partly developed as temporary housing areas,

were completed with permanent dwellings by 1956, but they remained separated from the Liberton-Inch area by an extensive recreational and institutional belt. In 1955, however, the Corporation acquired the Gracemount estate and the subsequently developed housing area drew the temporary housing area at South House into the city by 1961. Meanwhile at Hyvots Bank a local authority scheme had been built between Gracemount and Moredun, surrounding the institutional complex, which ceased to form part of the fringe. The only private development in this district was at Kedslie adjacent to the houses on Almwickhill Road.

The remaining open space south of the suburban railway at West Mains, was purchased by the Corporation in 1953 and houses were built there joining up with the older homes on the eastern slopes of Blackford Hill to form an extension of the urban area.

In 1953 building was resumed along Braid Farm Road on the south side of the Hermitage of Braid and as this expanded it linked up with the private housing estates at Bramdean and Buckstone which lay on the western slopes of the Braid Hills.

During the early 1950's the Council bought the land to the south of the City Hospital and by 1958 a large housing scheme occupied the entire area between Colinton Mains and the city, and in doing so enclosed the institutional and recreational land uses at Morningside and Craiglockhart. Private contractors had meanwhile resumed building at Comiston and Caiystane drawing Fairmilehead into the built-up area.

In order to house military personnel the War Department developed part of its property at Redford, and this had by 1960 linked the housing area at Colinton Mains with that at Colinton encompassing the institutional complex comprising Redford Barracks, the Old Soldiers' Home and Merchiston Castle School. Additional houses built by the Ministry of Defence at

Dreghorn along with the private developments at Redford and Bonaly extended the urban area south to the foothills of the Pentland Hills.

Apart from a small amount of building Spylaw, Juniper Green and Kingsknowe remained much the same as they had been in 1938, but were drawn into the city in 1957 after the construction of private houses over the remainder of the Longstone area. The houses at Longstone also extended west to the Council scheme at Sighthill, whose fringe location had been terminated by the large Saughton Mains estate built between 1951 and 1955. These housing areas surrounded the prison at Saughton, the laundries at Slateford and the cattle market at Slateford.

The Saughton Mains scheme also brought to an end Corstorphine's fringe location in 1955 since it linked up with the houses built at Broomhall after 1953. Additional links were established between them with the development of Westerbroom between 1960 and 1962. On the north side of Glasgow Road bungalows had been built west to Maybury and north along Drumbrae Road South by 1960, and with the sale of Clermiston House in 1961 private houses have been erected north towards Fox Covert.

In 1953 the Corporation bought the remaining open space on the western slopes of Corstorphine Hill and had fully developed the area by 1964. However, until that time the houses which had been built at Cammo, Southfield and Braehead had formed part of the fringe. At the present time the Barnton Park estate on the north side of Queensferry Road has not yet been completed.

On the eastern slopes of Corstorphine Hill, Hillpark, completed in 1955, only became part of the urban area in 1965 when houses were constructed at Marchfield.

The completion by 1956 of two large local authority housing schemes at Drylaw and Pilton surrounded the institutional and recreational

land-uses at Inverleith. Further development to the west at Muirhouse and Salvesen had by 1962 linked up with the expanding private housing area at Silverknowes.

The rate of urban growth during the post war period has been very rapid, but its spread has not been as great as might have been expected, due to the control imposed by planning legislation. In Edinburgh the maximum extent of the built-up area in 1967 was found to be the same as that of the urban and ribbon features discerned in 1938. This is indicative of the rationalising influence of the City Planning Department which has attempted to maximise the use made of all the available land within the city boundary. With increased personal mobility there is little doubt that without this control the roads radiating out from Edinburgh would have formed long ribbons of urban development, but growth has instead been channelled into the wedges of open land which occupied the interstices between the inter-war star like urban pattern. This infilling has taken place at Southfield, Niddrie and Craigmillar; the Inch, Moredun, Liberton, Gracemount and South House; at Greenbank, Comiston, Fairmilehead, Redford and Colinton; at Longstone; at Broomhouse, Corstorphine, Clermiston and Barnton; and at Muirhouse, Drylaw and Silverknowes. These housing areas gave rise to a very compact urban area interrupted only where the hill masses of the Royal Park, the Braid Hills-Blackford Hill and Corstorphine Hill penetrated deeply into the heart of the city.

PART II

Chapter 6

The rural-urban fringe of Edinburgh in 1967

In 1967, as a result of the rationalisation which followed the implementation of the Town and Country Planning Act, 1947, there were very few ribbons of fringe residential development continuous with Edinburgh's built-up area. As can be seen on Fig. 47 there are remnants of the pre-1947 pattern along Almwickhill Road, Biggar Road, Cammo. Road and a cluster of very large houses at the east end of Barnton Avenue which have not yet been drawn into the urban area. Two recently developed housing estates at Cramond and the houses at the western end of Barnton Avenue also form part of the rural-urban fringe since they are separated from the city by two large golf courses. In addition several long established villages on the periphery of the built-up area have retained their fringe classification. The great influence that the Royal Park has had on Edinburgh's urban growth can clearly be seen in the rural surroundings still enjoyed by Duddingston village despite its closeness to the city centre. Newcraighall and Gilmerton have also remained apart from the adjacent urban area, mainly because of their association with the mining industry. Even at the present time, despite the closure of the local mines, the National Coal Board still employs many of the people living in these villages, but this number is declining due to recent changes in N.C.B. policy and more people have had to take

jobs in Edinburgh. However, the mining character and environment of both villages differentiates them from the rest of the city, and this is further emphasised in Gilmerton by the presence of two dairy farms on Main Street. Cramond Village is another isolated community which has preserved its identity as the focus of a high class residential district to the north west of the city on the shores of the Firth of Forth.

As will have already been recognised one of the most striking features of Edinburgh in 1967 is the very limited amount of fringe housing development within the city's administrative boundary. To a large degree this has resulted from the creation of a Green Belt around the city in 1956 and the location of its inner boundary very close to the then existing built-up area. This meant that within a few years there was very little house building land in Edinburgh still undeveloped. However, since the demand for houses has not decreased and the fact that private house contractors were unable to bring about changes in the Green Belt boundary, new housing estates had to be located in the towns and villages situated beyond the Green Belt. As a result of this activity a new form of fringe has emerged comprising a ring of settlements that were once quite independent of Edinburgh. These communities still preserve much of their former character and social life and in this way differ markedly from the traditional fringe residential areas which resulted solely from the outward growth of the urban area. The fact that each of these settlements was at one time centred around local industry or industries raises the problem of how to determine the stage at which a town loses its independent status and becomes part of the rural-urban fringe. Before this can be decided it is essential that the social and economic character of each community should be studied, bearing in mind that they will rarely reach the high level of job-orientation towards the city characteristic of suburban housing developments.

As part of an investigation of this kind the population curve of the settlement, the level of commuting into the nearby city, the local industrial employment potential, the retail and service trade facilities in the settlement and the recreational land-uses around each community must be evaluated. The inclusion of a town or village within the fringe area will depend on evidence of increasing local population; static or declining local employment opportunities; retail, service and entertainment orientation towards the city, and most important of all a high level of job-dependence on the city. The exact proportion of the labour force commuting into the nearby urban area is difficult to define, but it must be great enough to be of crucial importance to the preservation of the settlement in its present form. Taking this factor into account it was felt that, taken in conjunction with the other information gathered, at least one third of the town or village labour force should travel daily into the city to work before the community can be included within the rural-urban fringe. This figure has been chosen because without this very important source of employment the town or village would be greatly reduced in size and consequently lose many of its services and community facilities.

The emergence of this new fringe pattern does mean that the element of continuity with the built-up area which formed an essential characteristic of the rural-urban fringe during the years prior to the creation of Green Belts has to be set aside. However, beyond the Green Belt continuity must be re-introduced with each settlement around its outer boundary being investigated, working outwards until there is a ring of communities which are not sufficiently linked with the city to be included within the fringe area.

The availability of published statistics greatly facilitated the

TABLE 7

Percentage of the labour force working in Edinburgh
(Settlements of over 1,000 - 1951)

Name of Settlement	Population	Estimated labour force	Number travelling to Edinburgh	Edinburgh workers as a % of the labour force
Danderhall	1,108	488	157	32.2
Loanhead	4,882	2,406	488	20.3
Musselburgh	17,010	8,216	2,088	25.4
Bonnyrigg & Lasswade	5,432	2,400	532	22.2
Broxburn	7,555	3,478	725	20.8
Currie	1,101	484	253	52.3
Dalkeith	8,786	3,947	898	22.8
East Calder	1,374	603	173	28.7
Penicuik	4,256	1,930	221	11.5
Prestonpans	2,907	1,337	174	13.0
Pumpherston	1,193	524	62	11.8
Rosewell	1,930	849	95	11.2
Roslin	1,278	563	99	17.6
South Queensferry	2,486	1,145	332	29.0
Tranent	5,639	2,594	299	11.5
Uphall	1,975	871	188	21.6
Wallyford	1,844	810	99	12.2
Whitecraig	1,361	598	69	11.5
Winchburgh	2,206	1,017	199	19.6

(Source: Census of Scotland, 1951, Vol. 4, table 15)

investigation of the burghs, but unfortunately there was no comparable material for the smaller settlements. The 1951 Census of Scotland includes workplace information for all settlements with over 1,000 inhabitants, whereas in the 1961 census similar data were only recorded for the burghs and districts of county. Employment statistics for most of the firms in the burghs were included in the County Development Plans published in 1955 and the situation at present was established from county council records and through personal interviews. An additional insight into the character of the burghs was obtained from the Board of Trade, Census of Distribution 1950[1] and 1961[2]. Table 1 (Area Tables: Scotland) of these reports lists for each burgh and landward area the

TABLE 8

Retail and service trade statistics for burghs around Edinburgh, 1950

	Average turnover for each establishment in £'s.	Average number of people in the burgh for each establishment	Average number of employees to each establishment	Retail & service turnover per capit of the burgh's populatio in £'s
Scottish Average	10,370	72.7	5.4	142.3
Name of Burgh				
Bonnyrigg & Lasswade	5,550	69.4	3.1	80.1
Dalkeith	8,240	62.9	4.3	131.0
Loanhead	8,010	77.6	4.1	103.3
Musselburgh	8,660	77.2	4.5	112.2
Penicuik	7,900	61.8	3.5	127.9
Prestonpans	7,390	61.0	3.7	121.2
South Queensferry	not included in census			
Tranent	12,180	81.1	4.7	150.2

(Source: Board of Trade "Report on the Census of Distribution and other services, 1950" H.M.S.O., London 1953)

TABLE 9

Retail and service trade statistics for burghs around Edinburgh, 1961				
	Average turnover for each establishment in £'s	Average number of people in the burgh for each establishment	Average number of employees to each establishment	Retail & service turnover per capita of the Burgh's population in £'s
Scottish Average	18,700	95.2	5.55	196.7
Name of Burgh				
Bonnyrigg & Lasswade	13,400	117.2	4.07	111.5
Dalkeith	14,100	79.8	4.41	117.3
Loanhead	13.100	116.8	4.46	111.9
Musselburgh	17,800	96.4	5.23	184.4
Penicuik	15,000	83.2	3.84	180.5
Prestonpans	16,900	91.2	3.85	165.9
South Queensferry	12,900	91.5	4.09	141.3
Tranent	17,000	79.0	3.77	218.1

(Source: Board of Trade "Report on the Census of Distribution and other Services, 1961" H.M.S.O., London, 1964).

number of establishments, the retail turnover and the number of people employed in the trade. On the basis of this data it is possible to calculate the average turnover for each establishment, the average number of people living in the burgh to each establishment, the average number of employees working in each shop and the per capita retail and service turnover for each inhabitant of the burgh. The figures calculated for

1. Board of Trade, "Report on the census of distribution and other Services, 1950" H.M.S.O., London 1953
2. Board of Trade, "Report on the census of distribution and other Services, 1961" H.M.S.O., 1964.

each burgh were then compared against the average statistics for all the Scottish burghs. The landward areas were omitted because it is impossible to establish with any degree of certainty the retail and service character of rural areas with a scatter of small communities. Fig. 74 shows the percentage deviations, both positive and negative, from the average retail and service trade figures for all the burghs in Scotland in the burghs around Edinburgh.

Unfortunately since the 1950 Census of Distribution included service trades in addition to retail facilities while that carried out in 1961 included only retail trade statistics a strict comparison can not be made between the two sets of data.

With regard to an analysis of the retail and service character of each burgh a list of factors which might have been influential in causing the deviation from the Scottish average, as illustrated on Fig. 74, was compiled. This list is by no means exhaustive and the factors included are not necessarily mutually exclusive. However, when a study has been made of the statistics for a town the factors affecting its retail and service trade structure will become apparent.

In those cases where the retail turnover for each establishment is above average this may be due to the absence of a competing retail centre, the small range of facilities in the town which forces many people to use the same establishments, the low ratio of shops to the burgh's population which also reduces the choice available to the people living there or the fact that the town is a shopping centre for the surrounding area.

On the other hand, below average turnover figures may be caused by competition from a nearby higher order shopping centre, a large number of shops with considerable duplication, a preponderance of small convenience goods shops with low incomes, or the fact that the town has

very little shopping influence over the adjacent villages and rural area.

Where the number of people in the burgh to each establishment is above average this may be due either to there being too few shops for a town of that size or to the influence of a nearby competing shopping centre which draws off much of the town's trade.

However, if the number of people in the town to each establishment is below average there may be a greater number of shops than can be supported by the inhabitants of the town or it may result from the town's role as a shopping centre for the surrounding districts.

If the average number of employees working in each establishment is high this would seem to indicate that the town has many large shops whereas below average figures point to the presence of many small shops.

In a town where the retail turnover per capita of the population is above average this may result from its importance as a local shopping centre, its resort function, the presence in the town of a large regional combine operating a large fleet of mobile shops, the shops being high income establishments or the population of the town may be very rich.

In contrast, however, below average per capita turnover figures may mean that the town is of little importance as a district shopping centre, that there are few high income shops there, or that the people living in the town are not very affluent.

In 1966 a shopping survey of the towns in the Esk Basin was carried out by Midlothian County Council[3] and the report of this summary has proved invaluable in providing a check on the conclusions arrived at on the Census of Distribution statistics.

In contrast to the quite detailed information available for the

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3. Midlothian County Planning Department "Midlothian eastern area shopping survey," Unpublished, 1966.

burghs, almost no specific data has been collected for the smaller settlements. Only those with over 1,000 inhabitants were included in the workplace tables of the 1951 Census of Scotland and in the 1961 census comparable statistics were only recorded for the Districts of the County, a much larger unit which incorporates both villages and rural areas. To overcome this lack of specific data it was necessary to survey each of the surrounding villages. This was done by means of a questionnaire[4] which was delivered, along with a stamped addressed envelope, to approximately one half of the houses in each community, and whenever the returns from a village were low reminder notes were delivered to the houses that had received a questionnaire.

For the purposes of this thesis the settlements around Edinburgh will be considered in two separate groups according to their location. The first includes all the settlements encompassed by the city's Green Belt and the second consists of the villages beyond the outer boundary of the Green Belt moving progressively further afield until those characteristics in keeping with fringe classification can no longer be discerned.

Immediately to the east of Edinburgh lies the Burgh of Musselburgh (Fig. 1), a town whose population grew very slowly until around 1900 when there was a period of very rapid increase, but since 1921 the number of inhabitants has remained almost stationary (Table 10). The position over the past forty years reflects in part the town's inability to attract new industries and is in part due to a slight reduction in the numbers employed by the older firms (Table 12). However, high unemployment and large scale emigration have been averted by the proximity of Edinburgh

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4. Appendix IV.

TABLE 10

The population of the Burgh of: **Musselburgh** 1841-1961

Year	Population	% increase	Year	Population	% increase
1841	6,331		1901	11,111	48.6
1851	7,092	12.0	1911	15,938	36.1
1861	7,429	4.8	1921	17,110	7.4
1871	7,517	1.2	1931	17,007	- 0.6
1881	7,880	4.8	1951	17,010	0.
1891	7,880	0.	1961	17,273	1.5

Source: Census of Scotland

TABLE 11

The Burgh of **Musselburgh** :Workplace Statistics 1961

	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Number of economically active people	5,620		2,720		8,340	
Movement out of the burgh to work	2,620	47	1,200	44	3,820	46
Movement into Edinburgh to work	1,670	30	1,110	41	2,780	33
Movement to Midlothian to work	590	11	60	2	650	8

Source: Census of Scotland 1961
Workplace tables, Table 1

where a wide range of different forms of employment were available.

The 1951 Census of Scotland recorded, as can be seen on Table 7, that 25% of the burgh's labour force commuted daily into Edinburgh, and by 1961 (Table 11) this proportion had increased to 33%. These statistics indicate that Musselburgh has become increasingly job-orientated towards the neighbouring city and in an attempt to discover the present trend in industrial employment in the burgh a comparison was made between the number of jobs available in the town in 1955 and 1965 (Table 12).

TABLE 12

Industrial employment in the Burgh of Musselburgh 1955 and 1965

Industry	Male		Female		Total	
	1955	1965	1955	1965	1955	1965
Wire	860	975	400	195	1,260	1,170
Paper	310	360	100	140	410	500
Net	110	60	460	270	570	330
Food & Brewing	200	210	60	60	260	270
Prefabricated Building	600	570	30	30	630	600
Fishing	120	120	-	-	120	120
Coach Bldg.	40	40	-	-	40	40
Wood Working	40	40	10	10	50	50
New Industries						
Engineering		48		2		50
Woollens		2		36		38
TOTAL	2,280	2,425	1,060	743	3,340	3,168

Source: County Development Plan, County Council Records, Private Survey.

This table does not include those people employed in retail and service trades in the burgh or municipal workers, but does account for all industrial employment apart from those who worked for the National Coal Board (N.C.B.). In 1955 the N.C.B. employed 700 Musselburgh people, but this number had fallen to 487 by 1965. This decline along with the slight fall in the workforces of the wire and net factories (Table 12) has been greater than the number of jobs created by the three small firms established in the town since 1961. On the basis of this information and the Registrar General's 1966 mid-year population estimate of 17,600 for the town it would appear probable that the proportion of the Musselburgh labour force now working in Edinburgh is considerably in excess of 33%.

The retail and service trade characteristics of the burgh in 1950 are given on table 8 and fig. 74, and these indicate that there are fewer establishments than would be expected in a town of 17,000 inhabitants. The shops tended to be small and locally orientated and there was a considerable amount of duplication of shop types. Musselburgh also appeared to have little influence on the surrounding area and faced strong competition from a neighbouring higher order centre.

However, the 1961 statistics (Table 9) showed Musselburgh to be very close to the national average retail figures, but there was still evidence that the shops were small with a predominance of convenience goods establishments. This apparent improvement in the retail facilities was largely the result of the omission of service trade from the 1961 census, which indicates that there was a general shortage of these facilities in the burgh.

The 1966 Midlothian County Council survey report[5] on shopping

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5. Midlothian County Council, op. cit., 3.

concluded that Musselburgh acted as an important centre for food purchases, but that other retail and service establishments were less well represented. The report also noted that few inhabitants of the burgh shopped in other Midlothian towns, mainly because of the proximity of Edinburgh and it was also emphasised that the city was an important daily shopping centre since 1,100 women from Musselburgh worked there. As would be expected it was found that specialised purchases were made in Edinburgh.

This study has shown that the inhabitants of Musselburgh have become increasingly dependent on Edinburgh for employment as the older industries on which the town has depended for many years have declined and this loss of jobs has not been counterbalanced by the new factories established there. Retail facilities are adequate for everyday food requirements, but more specialised goods and services are poorly represented.

The race course, golf courses and yachting club within the burgh attract many people from Edinburgh adding to the interaction between the two towns. This has been considerably increased by the development of several private residential estates recently developed in Musselburgh to take advantage of the great demand for houses close to the city.

It is therefore concluded that the level of employment dependence on Edinburgh and the strong recreational ties which exist between the two towns has become so great that Musselburgh must be included within the city's rural-urban fringe.

Loanhead, situated immediately to the south of Edinburgh came into being as a mining community soon after 1800. As can be seen on Table 13 the town grew very rapidly at the end of the nineteenth century. This was followed by a static period with renewed expansion since 1921.

TABLE 13

The population of the Burgh of: **Loanhead, 1841-1961**

Year	Population	% increase	Year	Population	% increase
1841	810		1901	3,011	- 7.2
1851	-		1911	3,483	15.7
1861	1,310		1921	3,441	- 1.2
1871	1,759	34.3	1931	3,939	14.5
1881	2,493	41.2	1951	4,882	23.9
1891	3,244	26.1	1961	5,108	4.6

Source: Census of Scotland

TABLE 14

The Burgh of **Loanhead** :Workplace Statistics 1961

	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Number of economically active people	1,710		810		2,520	
Movement out of the burgh to work	850	50	610	75	1,460	58
Movement into Edinburgh to work	350	21	410	51	750	30
Movement to Midlothian to work	490	29	200	25	690	27

Source: Census of Scotland 1961
Workplace tables, Table 1

Apart from the mining the only other important industries in the burgh are marine engineering which has grown steadily in size since it was established in 1896, and paper making.

However, as the town's population increased, especially since 1921, local industries have only been able to employ a small proportion of the total labour force and this has meant that many people from Loanhead have had to look elsewhere for work. The 1951 census established that Edinburgh was the recipient of 20% of the burgh's workers (Table 7) and this had increased to 30% by 1961 (Table 14).

TABLE 15

Industrial employment in the Burgh of Loanhead
1955 and 1965

Industry	Male		Female		Total	
	1955	1965	1955	1965	1955	1965
Marine Engineering	385	550	28	100	413	650
Paper	150	140	60	40	210	180
Artificial Stone	22	20	-	-	22	20
Fertilizers	12	12	3	3	15	15
Motor Engineering	17	17	5	4	22	21
New Industries						
Plastics		3		9		12
TOTAL	586	742	96	156	682	898

Source: Midlothian County Development Plan,
County Records and Private Survey.

The extent to which the engineering firm and paper mill form the backbone of the industrial employment available in Loanhead can be clearly seen on Table 15. In addition the N.C.B. employed 650 people

from the burgh in 1955, but this had fallen to 477 in 1965. However, the decline has been counterbalanced by the expansion of the engineering works and the opening of a plastics factory in the old school building at New Pentland.

The 1950 retail and service trade statistics for Loanhead (Table 8) indicate that there were a large number of small establishments in the town which served a very localised area and competed fiercely with one another. The figures also point to the fact that the burgh's shopping facilities suffered from the presence of a nearby retail centre. By the 1961 census (Table 9) there had been a marked reduction in the number of shops in Loanhead, but this was due partly to the omission of service establishments from this census. However, the retail statistics still indicate that the shops were very small and locally orientated.

These conclusions were fully endorsed by the 1966 Midlothian County Council shopping survey[6] and in addition it noted that Edinburgh was a very important daily shopping and specialised goods centre.

Since it lies within the Green Belt, Loanhead is not allowed to attract new industries or to build any new housing estates. This means that as N.C.B. employment continues to decline more and more people will have to look elsewhere for work, especially as no expansion of the engineering works is foreseen in the near future. The proximity of Edinburgh and the ease with which it can be reached by both bus (Fig. 75) and car will no doubt attract many Loanhead people to seek employment there. It is therefore felt that the existing level of job-orientation and shopping links with Edinburgh and the prospect of even stronger ties developing between the two towns in the near future, means that Loanhead

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6. Midlothian County Council, op.cit., 3.

must be considered as forming part of the city's fringe area.

The only other settlements located within the Green Belt are the mining communities of Wallyford, Danderhall and Bilston which were established by Midlothian County Council during the 1930's to provide better housing conditions and commuter facilities for the people working in the neighbouring mines. Apart from the years 1939 to 1950 these settlements grew quite rapidly, but this came to an end in 1958 when a re-appraisal of N.C.B. policies led to the closure of many mines in the Esk Basin. The resultant decline in Coal Board employment and the absence of any alternative sources of local employment has forced many people living in these communities to look elsewhere for work. The general shortage of jobs in the mining area has meant that commuting into Edinburgh has become increasingly important. However, since there are no published travel to work data available, it was necessary to carry out a survey of each of these settlements.

Wallyford is located to the east of Musselburgh, but as a result of subsequent growth the two settlements have almost become continuously built-up. In 1955 Wallyford had a population of 2,000, but according to the County Development Plan[8] the proximity of Musselburgh and Edinburgh greatly reduced the influence of the village on the surrounding area. The contraction of the coal mining has reduced employment in this industry from 470 in 1955 to 323 in 1966. The 1951 census had already brought to light a small commuter element in the labour force (Table 3), but the unexpected decline in the number of N.C.B. jobs has meant that travel to work in Edinburgh has increased considerably, since the neighbouring towns of Dalkeith and Musselburgh could not offer sufficient alternative employment.

A detailed analysis of the survey material is given on Table 16

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8. Midlothian County Council "County Development Plan", Survey Report, July, 1956, 184.

TABLE 16

Name of the village WALLYFORD

Population of the village 2,430 (1965)

Total number of houses in the village 468

Total number of houses receiving a questionnaire 230

Total number of questionnaires returned 109

Estimated total Labour force of the village (Based on the census enumeration data and the survey material) 983

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families 3.6%

Edinburgh workers as a percentage of the total labour force 38%

Heads of family working in Edinburgh as a percentage of the total number of heads of families who work. 26%

Percentage of the families with at least one member working in Edinburgh 57%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Wallyford as a percentage of the total number of families in the settlement. 7%

B. Families who have moved to Wallyford from the local area as a percentage of the total number of families in the settlement. 39%

C. Families who have moved to Wallyford from Edinburgh as a percentage of the total number of families in the settlement. 18%

D. Families who have moved to Wallyford from elsewhere as a percentage of the total number of families in the settlement 36%

Table 16 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 50%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 50%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 50%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 43%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 30%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 55%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 56%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 40%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 75%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 27%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 10%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 38%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 25%
(b) Bus — 75%
(c) Train — -

Table 16 continued

SECTION V

SHOPPING

Everyday Shopping (1) Wallyford & Vans 61% (4)
(2) Musselburgh 28% (5)
(3) Edinburgh 11% (6)

1. Percentage of the families in Wallyford making one shopping trip into Edinburgh in the previous week 25%

2. Percentage of the families in Wallyford making more than one shopping trip into Edinburgh in the previous week 11%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Wallyford making one visit to the cinema or theatre anywhere in the past two weeks 11%

2. Percentage of the families in Wallyford making more than one visit to the cinema or theatre anywhere in the past two weeks 7%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

and this indicates that 38% of Wallyford's labour force now work in Edinburgh. When this overall total was broken down into its constituent parts it was discovered that 26% of the heads of family commuted into the city. This particular group of wageearners was felt to be very important since the place of work of the head of the family will normally be instrumental in deciding where the family will live. The relatively low proportion of this group working in Edinburgh reflects the fact that the community was specifically established to house people working in the local mines. The survey also established that 57% of the households in Wallyford had at least one member employed in the city.

Former place of residence was shown to be another important factor in job-orientation towards Edinburgh since those families which had always lived in the village would appear to have established quite strong employment ties with the city, while those families which had moved out from Edinburgh retained similar links with their former place of residence. On the other hand families from other parts of the country who had come to live in Wallyford because of the availability of work in the neighbouring mines were far less dependent on the city for employment.

Numerous mobile vans supplement the fifteen local shops in providing the everyday shopping requirements of the families living in the village, while Musselburgh and Edinburgh act as weekly shopping centres where more specialised goods are purchased.

Wallyford is almost entirely without entertainment establishments, but as the County Development Plan pointed out "The proximity of Musselburgh is no doubt used to advantage by the inhabitants of Wallyford in regard to cinemas, shops, recreation etc., but on the other hand the existence of the dog racing track in the village encourages an influx of people who enjoy this form of sport".[9] However, the survey indicated that Edinburgh

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9. Ibid., 186.

was the main centre for cinema and theatre visits (Table 16).

This investigation has shown that as N.C.B. employment has declined Edinburgh has assumed a very important position as a place of work for many people living in Wallyford. The city is also the regional shopping and entertainment focus. Consequently it is felt that the growing links between the two towns over the past ten years have drawn Wallyford into Edinburgh's fringe area.

Danderhall has a very similar history to that already noted in the case of Wallyford, but as it is much closer to Edinburgh this community has felt the employment pull of the adjacent urban area from an earlier date and to a far greater extent than Wallyford. As can be seen on Table 7 travel to work in the city already accounted for 32% of Danderhall's labour force in 1951 and the survey of the village showed that this proportion had risen to 60%. This situation is accounted for by the great variety of jobs available in the city, the recent decline in the coal mining industry and ease of access into Edinburgh (Fig. 75). This movement involves almost one half of all the heads of family in Danderhall in addition to three quarters of all other wage earners, which clearly indicates the almost complete absence of any local employment apart from mining. The village is also characterised by the high frequency of daily and weekly shopping visits into Edinburgh as would be expected in a settlement with very few shops within easy reach of the city centre stores (Table 17).

On the basis of this information Danderhall, like Wallyford must be considered as forming an integral part of Edinburgh's urban fringe.

The last of the three mining communities in the Green Belt is Bilston which lies to the south of Edinburgh. As was the case with

TABLE 17

Name of the village DANDERHALL

Population of the village 2,680 (1965)

Total number of houses in the village 774

Total number of houses receiving a questionnaire 380

Total number of questionnaires returned 185

Estimated total Labour force of the village (Based on the census enumeration data and the survey material) 1,393

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families 5%

Edinburgh workers as a percentage of the total labour force 60%

Heads of family working in Edinburgh as a percentage of the total number of heads of families who work. 41%

Percentage of the families with at least one member working in Edinburgh 73%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Danderhall as a percentage of the total number of families in the settlement. 8%

B. Families who have moved to Danderhall from the local area as a percentage of the total number of families in the settlement. 59%

C. Families who have moved to Danderhall from Edinburgh as a percentage of the total number of families in the settlement. 23%

D. Families who have moved to Danderhall from elsewhere as a percentage of the total number of families in the settlement 10%

Table 17 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 65%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 44%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 90%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 53%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 39%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 80%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 75%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 71%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 80%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 61%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 62%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 60%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 55%
(b) Bus — 45%
(c) Train —

Table 17 continued

SECTION V

SHOPPING

Everyday Shopping	(1)	Danderhall & Vans	75%	(4)
	(2)	Edinburgh	15%	(5)
	(3)	Dalkeith	10%	(6)

1. Percentage of the families in Danderhall making one shopping trip into Edinburgh in the previous week — 40%

2. Percentage of the families in Danderhall making more than one shopping trip into Edinburgh in the previous week — 27%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Danderhall making one visit to the cinema or theatre anywhere in the past two weeks — 21%

2. Percentage of the families in Danderhall making more than one visit to the cinema or theatre anywhere in the past two weeks — 6%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh — 100%

TABLE 18

Name of the village BILSTON

Population of the village	1,400 (1965)
Total number of houses in the village	389
Total number of houses receiving a questionnaire	190
Total number of questionnaires returned	90
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	506

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	14%
Edinburgh workers as a percentage of the total labour force	65%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	52%
Percentage of the families with at least one member working in Edinburgh	62%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Bilston as a percentage of the total number of families in the settlement.	10%
B. Families who have moved to Bilston from the local area as a percentage of the total number of families in the settlement.	59%
C. Families who have moved to Bilston from Edinburgh as a percentage of the total number of families in the settlement.	21%
D. Families who have moved to Bilston from elsewhere as a percentage of the total number of families in the settlement	10%

Table 18 Continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	50%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	33%
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	100%
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	55%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	36%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	88%
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	100%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	100%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	73%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	67%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	80%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	56%
	(b) Bus	44%
	(c) Train	-

Table 18 continued

SECTION V

SHOPPING

Everyday Shopping	(1)	Bilston & Vans	83%	(4) Dalkeith	4%
	(2)	Loanhead	7%	(5)	
	(3)	Edinburgh	7%	(6)	

1. Percentage of the families in Bilston making one shopping trip into Edinburgh in the previous week — 59%

2. Percentage of the families in Bilston making more than one shopping trip into Edinburgh in the previous week — 17%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Bilston making one visit to the cinema or theatre anywhere in the past two weeks — 14%

2. Percentage of the families in Bilston making more than one visit to the cinema or theatre anywhere in the past two weeks — 4%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh — 100%

Wallyford and Danderhall no provision was made for the location of industries in the village with the result that almost every employed person has to leave Bilston to work either in the local mines or in neighbouring towns. The survey material (Table 18) provided the first accurate workplace figures for the village and these indicate that 65% of the total labour force have jobs in Edinburgh. The shortage of employment other than that provided by the N.C.B. accounts for the very high proportion of people other than heads of family who commute daily into the city. Bilston is poorly provided with shops, but this deficiency is offset to a certain extent by a large number of mobile shops which supply the everyday food requirements of the villagers, (Table 18)

Bilston's employment links with Edinburgh have always been strong, and since this has increased considerably in recent years the community has been drawn into the city's rural-urban fringe.

It has already been established in Chapter 5 that Currie, a linear settlement south west of Juniper Green had become part of Edinburgh's fringe area during the inter-war years. This conclusion was fully endorsed by the 1951 census when 52% of the village labour force were ennumerated as working in the city. However, after the introduction of planning legislation in 1947, Currie's ribbon form came under review and Midlothian County Council were faced with the decision either to allow the settlement to run down or to develop it into a much more physically compact community. The county council decided to follow a policy of expansion and began this by building a new regional sewer. This work had scarcely been completed when the Government began to advocate the creation of Green Belts around large cities and in accordance with this proposal talks began between Edinburgh Corporation and Midlothian, West Lothian and East Lothian County Councils. The proposed residential development at

Currie posed a major problem since it lay in the heart of the area that should have been designated as Green Belt. Midlothian County Council argued that they could not afford to abandon their plans for the district and eventually it was agreed that the outer boundary of the Green Belt should be drawn in such a way as to allow this development to take place (Fig. 72).

Subsequent house construction has increased Currie's population from 1,101 in 1951 to 6,750 in 1965 and as there is a very limited local employment potential (Table 19), Currie has become a very large suburban dormitory settlement almost forming a continuous part of Edinburgh's built-up area.

TABLE 19

Industrial employment in Currie, 1955 and 1965

Industry	Male and Female	
	1955	1965
Paper (Kinleith Mill)	300	220
Tanning (Kincauld Mill)	18	16
Wood Turning	14	14
New Industries		
Building		30
TOTAL	332	276

Source: Midlothian County Council Development Plan and Personal Survey

In 1963 J. McNeil[10] carried out a 10% sample survey of the 1,730 houses in Currie and discovered that over 80% of all the householders

10. McNeil, J. "A Study of Currie, Midlothian, 1963" Unpublished M.A. Dissertation, Department of Geography, University of Edinburgh, 1964

in the community were employed in Edinburgh and that in the Wimpey estate, which had been developed specifically to meet the demand for houses close to the city, this figure reached 100%. It was also noted that a very high proportion of the other wage earners also worked in Edinburgh.

The shopping facilities in Currie can be divided into two groups, the old village nucleus and three shopping centres located within the new residential areas, but each has a similar range of shops, selling mainly food, confectionary and baby goods. This duplication means that each centre serves the houses in its immediate vicinity, a pattern that is broken by a large self-service branch of St. Cuthbert's Co-operative Society at Pentland View which draws people from every section of the village. Other notable features are the pull on the eastern districts of Currie exerted by Juniper Green and the large number of mobile shops serving the whole community. Proximity to Edinburgh has resulted in many families doing their daily shopping there in addition to the obvious attraction of the city stores for more specialised shopping.

This evidence shows that Currie has emerged as an almost classical example of dormitory fringe development with almost total employment-orientation towards the neighbouring city.

Those settlements situated beyond the outer boundary of the Green Belt (Figs 71 and 73) will now be considered in order to determine those which formed part of Edinburgh's rural-urban fringe.

The Burgh of Prestonpans, located on the shores of the Firth of Forth to the east of Musselburgh, has had a long and close association with the adjacent mining area. The coal was originally used by the people living in the town to evaporate salt from sea water, but with the decline of the salt industry, coalmining became the major local source of employment. However, the absence of any alternative work forced many

people to commute daily to Tranent, Musselburgh or Edinburgh. As can be seen on Table 7 13% of Prestonpan's labour force were employed in Edinburgh in 1951 and with the recent fall in N.C.B. jobs this proportion had risen to 24% by 1961.[11]

Between 1961 and 1965 the number of mineworkers in Prestonpans fell from 660 to 599, but this has largely been counterbalanced by the opening of a thermal power station nearby at Cockenzie. Many local people were employed in the construction of the power station, but of even greater importance are the permanent jobs that will become available once the station is fully operational. There will be 300 jobs for local people and although not all will be filled by people living in Prestonpans, the local employment situation will be greatly improved.

The retail and service statistics for Prestonpans in 1950 (Table 8) point to the fact that there were a large number of small establishments in the town with a considerable amount of duplication of shop types. The retail turnover figures indicate that the shops probably served a very localised market and also had to compete with the nearby higher order shopping centres of Tranent and Musselburgh. There had been little change in the burgh's retail characteristics by 1961 (Table 9).

It would therefore appear that although Prestonpans has become quite heavily dependent on Edinburgh for employment remoteness from the city has discouraged many potential commuters and as the number of local jobs is increasing the burgh should be excluded from Edinburgh's fringe area.

Tranent, despite the fact that it acts as a small agricultural service centre, a regional retailing focus and a mining town and is

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11. Census of Scotland 1961, Workplace Tables, Table I.

situated ten miles away from the city, also shows evidence of growing employment ties with Edinburgh. The 1951 census enumerated only a small commuter element in Tranent's population (Table 7), but the subsequent decline of the mining industry of the area and the attraction of the wide variety of jobs available in the city has meant that 24% of the burgh's labour force now travels to Edinburgh to work.[12] These people have no doubt been joined by some of the people who have bought houses on the small private housing estate developed on the western side of the burgh since 1961.

The 1950 retail and service trade figures (Table 8) for the town appear to be contradictory in that they point to a small number of shops with a very high turnover. This anomaly is explained by the presence in Tranent of the headquarters of the East Lothian Co-operative Society, whose fleet of mobile vans serve all the counties in south eastern Scotland. From the 1961 retail statistics (Table 9) it would appear that the number of shops has increased considerably and that they are of average size. This results from the construction of new shops as well as the omission of service facilities from the more recent census. However, although the turnover for each shop is lower than that recorded in 1951 the very high per capita turnover reflects the continued importance of the co-operative society. There is little evidence of any dependence on Edinburgh other than its role as the regional shopping and service centre.

This investigation has established that Tranent is in a transitional position especially in terms of its employment ties with Edinburgh. However since the burgh's continues to act as an important mining,

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12. ibid., 11

TABLE 20

Name of the village WHITECRAIG

Population of the village	1,550 (1965)
Total number of houses in the village	393
Total number of houses receiving a questionnaire	190
Total number of questionnaires returned	98
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	511

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	19%
Edinburgh workers as a percentage of the total labour force	23%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	18%
Percentage of the families with at least one member working in Edinburgh	26%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Whitecraig as a percentage of the total number of families in the settlement.	15%
B. Families who have moved to Whitecraig from the local area as a percentage of the total number of families in the settlement.	78%
C. Families who have moved to Whitecraig from Edinburgh as a percentage of the total number of families in the settlement.	7%
D. Families who have moved to Whitecraig from elsewhere as a percentage of the total number of families in the settlement	0%

Table 20 Continued.

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	0%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	0%
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	0%
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	20%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	19%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	22%
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	75%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	50%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	-
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	-
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	-

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	50%
	(b) Bus	50%
	(c) Train	-

SECTION V

SHOPPING

Everyday Shopping

(1)	Whitecraig & vans	70%	(4)	Prestonpans	4%
(2)	Musselburgh	11%	(5)	Port Seton	4%
(3)	Dalkeith	11%	(6)		

1.	Percentage of the families in Whitecraig making one shopping trip into Edinburgh in the previous week	37%
2.	Percentage of the families in Whitecraig making more than one shopping trip into Edinburgh in the previous week	11%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1.	Percentage of the families in Whitecraig making one visit to the cinema or theatre anywhere in the past two weeks	30%
2.	Percentage of the families in Whitecraig making more than one visit to the cinema or theatre anywhere in the past two weeks	19%
3.	Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh	100%

agricultural and retail focus it is felt that at the present time it should not be included within the city's rural-urban fringe. This decision may, however, have to be revised if more private houses are built in the burgh without the provision of additional local employment.

The mining community of Whitecraig came into being during the 1930's as a result of Midlothian County Council's redevelopment of the old settlement of Deantown. However, unlike Wallyford and the other mining villages already discussed Whitecraig has no direct road access into Edinburgh and this has no doubt been one of the main reasons why commuting into the city has not developed to the level found in the other communities. In 1951 (Table 7) only 12% of Whitecraig's labour force were employed in Edinburgh and this had risen to 23% as was established in a survey of the village (Table 20). This survey also indicated that those families which have always lived in Whitecraig have retained very strong local employment ties in contrast to the strong links with Edinburgh which have been preserved by families which have moved out from the city. This situation is one that would be expected since knowledge of local job-opportunities will to a certain extent depend on length of residence in the area.

Local shops and mobile vans cater for almost all of Whitecraig's every day shopping requirements, the remainder being undertaken either in Dalkeith or Musselburgh. Edinburgh is of little importance in this particular shopping activity and is regarded mainly as a centre where specialised goods are bought (Table 20).

The village of Whitecraig illustrates the importance of accessibility in determining the areal extent of a city's rural-urban fringe since in this instance the intervening towns of Dalkeith and Musselburgh absorb many of the people who might otherwise have sought employment in Edinburgh.

TABLE 21

The population of the Burgh of: Dalkeith, 1841-1961					
Year	Population	% increase	Year	Population	% increase
1841	4,831		1901	7,019	- .2
1851	5,086	5.3	1911	7,019	0
1861	5,396	6.1	1921	7,238	3.1
1871	5,386	- .2	1931	7,502	3.6
1881	6,931	28.7	1951	8,782	17.1
1891	7,035	1.5	1961	9,249	5.3

Source: Census of Scotland

TABLE 22

The Burgh of Dalkeith	:Workplace Statistics 1961					
	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Number of economically active people	2,790		1,380		4,170	
Movement out of the burgh to work	1,810	65	770	56	2,580	62
Movement into Edinburgh to work	620	22	600	44	1,220	29
Movement to Midlothian to work	1,140	41	130	9	1,270	31

Source: Census of Scotland 1961
Workplace tables, Table 1

Consequently this village cannot be considered as forming part of the city's fringe area.

Sited on the narrow neck of land at the confluence of the Rivers North Esk and South Esk, the Burgh of Dalkeith developed as a major bridge point and agricultural market centre. However, during the nineteenth century coal mining increased greatly in importance and this was the reason for the steady increase in the town's population until 1900 (Table 21). This was followed by a period during which little growth took place, but expansion began again in 1945.

Like most of the mining settlements in the Esk Basin, the shortage of employment other than in the mines has forced many people living in Dalkeith, especially the women, to look elsewhere for work. Naturally, Edinburgh with its wide range of industries acted as a major magnet and as early as 1951 the census recorded that 23% of the burgh's labour force worked in the city (Table 7). This trend continued to grow and ten years later it was found that this proportion had risen to 29% (Table 22).

This increased job-orientation towards Edinburgh resulted largely from the drop in the number of Dalkeith people employed by the N.C.B. from 1,200 in 1955 to 950 in 1961, and the fact that this was not counterbalanced by the opening of any new industries in the town.

On the basis of this information it would appear that Dalkeith was gradually being drawn into Edinburgh's rural-urban fringe. However, the opening of an industrial estate in the burgh and the attraction to it of several large firms has greatly reduced the need for the people living in Dalkeith to travel into Edinburgh for work (Table 23). A total of 1,300 new jobs have been created since 1961 and this has more than compensated for the continued reduction in N.C.B. employment from 950 in 1961 to 725 in 1965.

TABLE 23

Industrial employment in the Burgh of Dalkeith 1955 and 1965						
Industry	Male		Female		Total	
	1955	1965	1955	1965	1955	1965
Carpets	220	180	210	220	430	400
Food & Brewing	100	100	50	50	150	150
Misc.Manufacturing	110	120	25	30	135	150
Printing	30	30	15	15	45	45
New Industries						
Woollens		43		87		130
Engineering (Ferranti)		625		325		950
Printing (Letts)		70		130		200
TOTAL	460	1,168	300	857	760	2,025

Source: Midlothian County Development Plan, County Records and Personal Survey.

Table 8 indicates that in 1950 Dalkeith had a greater number of shops than would be expected for the population of the town and that they tended to be below average in size. However, the high per capita turnover points to the burgh's role as a shopping centre for the surrounding district and this would also account for the large number of shops. A similar picture emerged from the 1961 retail statistics (Table 5), apart from a slight fall in the turnover for each shop which may be due to increasing competition from a nearby higher order centre. These conclusions were fully supported by the shopping survey carried out by Midlothian County Council in 1966,[13] which noted that Dalkeith meets

13. Midlothian County Council, op. cit., 3.

almost all the convenience goods requirements of the burgh population and the people living in the adjacent settlements. Service trades were also found to be well represented, much more so than was the case in Musselburgh, which is a further indication of Dalkeith's role as a shopping centre. However, Edinburgh with its greater variety of shops and stores is regarded as the best centre for the purchase of more specialised goods.

A measure of the faith that the Burgh Council and Midlothian County Council have in Dalkeith's future is clearly reflected in the recent redevelopment of the town's shopping centre.

This investigation has established the fact that Dalkeith has pulled back from the brink of fringehood since 1961 as a result of the very substantial industrial expansion that has taken place in the town. Unfortunately there are no up-to-date workplace statistics for the burgh, but it can safely be assumed that the availability of local employment has greatly reduced the number of people working in Edinburgh.

In 1929 the papermaking town of Lasswade was united with the larger mining town of Bonnyrigg to form the Burgh of Bonnyrigg and Lasswade. Both of these towns, while they were independent, had grown quite rapidly between 1841 and 1881, after which there was a period during which their populations had remained almost stationary, but since 1921 expansion has been considerable (Table 24). (In this table the totals between 1841 and 1921 represent the combined populations of the two independent towns.)

The first accurate estimate of the level of Bonnyrigg and Lasswade's employment dependence on Edinbrugh was given in the 1951 census when 22% of the burgh's labour force were recorded as working in the city (Table 7). By 1961 this proportion had increased to 33% mainly because of the gradual fall in the number of local jobs (Table 25).

TABLE 24

The population of the Burgh of: **Bonnyrigg & Lasswade 1841-1961**

Year	Population	% increase	Year	Population	% increase
1841	1,189		1901	3,793	1.9
1851	-		1911	3,835	1.1
1861	1,611		1921	4,057	5.9
1871	3,115	93.4	1931	4,481	10.5
1881	3,657	17.4	1951	5,432	21.2
1891	3,724	1.8	1961	6,510	19.8

Source: Census of Scotland

TABLE 25

The Burgh of **Bonnyrigg & Lasswade** :Workplace Statistics 1961

	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Number of economically active people	2,030	[illegible]	850	[illegible]	2,880	
Movement out of the burgh to work	1,560	77	610	71	2,170	75
Movement into Edinburgh to work	520	26	430	51	950	33
Movement to Midlothian to work	990	49	170	20	1,160	40

Source: Census of Scotland 1961
Workplace tables, Table 1

TABLE 26

Industrial employment in the Burgh of Bonnyrigg & Lasswade 1955 and 1965						
Industry	Male		Female		Total	
	1955	1965	1955	1965	1955	1965
Carpets	114	48	101	52	215	100
Paper	75	75	26	65	99	140
Pre-Cast Stone	43	40	3	2	46	42
Oatmeal	10	10	34	34	44	44
TOTAL	240	163	164	153	404	316

Source: Midlothian County Development Plan, County Records and Private Survey

As can be seen on Table 26, despite the fact that the local paper mill increased its labour force, the drastic reduction in the number of jobs in the carpet industry from 215 in 1955 to 100 in 1965 and a large cut back in N.C.B. employment from 700 in 1955 to 613 in 1965, has inevitably forced many people to travel either to Edinburgh or Dalkeith to work.

The retail figures for Bonnyrigg and Lasswade in both 1950 and 1961 (Table 8 and 9) are almost identical to those for Loanhead which have already been analysed (page 150). It would therefore appear that the families living in the town not only do their weekly shopping in either Dalkeith or Edinburgh, but also that a considerable proportion of the daily shopping is carried out in these centres.

With the development of two new private housing estates in the

burgh since 1961, both of which have attracted many families working in Edinburgh* and the continued decline of the local industries Bonnyrigg and Lasswade's job-orientation towards the city will probably have increased and this necessitates the inclusion of the burgh within Edinburgh's fringe area.

The nineteenth century expansion of the coal mining industry in the Esk Basin and the opening of a carpet factory in the valley of the River North Esk adjacent to the settlement resulted in the rapid growth of the long established agricultural village of Roslin.

Thriving local industries, proximity to the paper making town of Penicuik and remoteness from Edinburgh were largely responsible for the fact that only 18% of the village labour force worked in the city in 1951 (Table 7). However, with the closing of the carpet factory and the decline of mining during the late 1950's the number of local jobs fell sharply. The survey of Roslin (Table 27) established that many of the redundant workers had found that Edinburgh was the only place where work could be found and commuting into the city now involves 35% of the village labour force. This compares with the 15% who work for the N.C.B. and the 20% who travel to Penicuik.

The Midlothian County Council shopping survey[14] found that there was a significant daily and weekly movement into Edinburgh to shop, whereas the questionnaire survey, although it confirmed the latter, found little evidence of daily shopping trips into the city (Table 27).

On the basis of the evidence of a very considerable dependence on the city as a place of work it must be concluded that Roslin has come to form an integral part of Edinburgh's rural-urban fringe.

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* Interview with the estate sales representative.

14. Midlothian County Council, op. cit., 3.

TABLE 27

Name of the village ROSLIN

Population of the village	1,500 (1965
Total number of houses in the village	488
Total number of houses receiving a questionnaire	240
Total number of questionnaires returned	120
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	683

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	19%
Edinburgh workers as a percentage of the total labour force	35%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	32%
Percentage of the families with at least one member working in Edinburgh	47%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Roslin as a percentage of the total number of families in the settlement.	22%
B. Families who have moved to Roslin from the local area as a percentage of the total number of families in the settlement.	47%
C. Families who have moved to Roslin from Edinburgh as a percentage of the total number of families in the settlement.	8%
D. Families who have moved to Roslin from elsewhere as a percentage of the total number of families in the settlement	22%

Table 27 Continued.

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 33%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 25%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 40%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 30%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 29%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 33%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 66%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 100%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 0%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 38%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 20%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 66%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel

by (a) Car — 40%

(b) Bus — 60%

(c) Train — -

TABLE 27 Continued.

SECTION V

SHOPPING

Everyday Shopping

(1)	Roslin & Vans	92%	(4)	Loanhead	2%
(2)	Penicuik	3%	(5)		
(3)	Edinburgh	3%	(6)		

1. Percentage of the families in Roslin making one shopping trip into Edinburgh in the previous week — 36%

2. Percentage of the families in Roslin making more than one shopping trip into Edinburgh in the previous week — 8%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Roslin making one visit to the cinema or theatre anywhere in the past two weeks — 19%

2. Percentage of the families in Roslin making more than one visit to the cinema or theatre anywhere in the past two weeks — 8%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh — 86%

Since both the Burgh of Bonnyrigg and Lasswade and the village of Roslin have been classified as fringe settlements it became necessary to make a study of Rosewell, a village situated to the south of these communities on the edge of the very steep sided valley of the River North Esk. Established as a mining village the local pits and brick works provided almost the only source of employment for the people living there. This meant that from an early date many people were forced to leave the village every day and work in the surrounding towns. However, as can be seen on Table 7, Edinburgh did not feature strongly in this movement in 1951, mainly because of the absence of direct access from Rosewell to the city and the fact that this route ran via the burghs of Bonnyrigg and Lasswade and Dalkeith, where a limited number of jobs were available. These factors still seem to be important, since despite the recent decline in N.C.B. employment a survey of Rosewell established that commuting to Edinburgh only involved 22% of the village labour force. Poor job prospects and low amenity make Rosewell an unattractive place to live in and with the closure of several local mines the village population has been falling since 1951 (Table 29).

The survey information (Table 28) indicates that Edinburgh's employment influence over Rosewell is little more than that which would be expected in a small town, with a limited local employment potential, close to a large urban area, and Rosewell should therefore be excluded from the city's fringe area.

TABLE 28

Name of the village ROSEWELL

Population of the village	1,750 (1965)
Total number of houses in the village	500
Total number of houses receiving a questionnaire	250
Total number of questionnaires returned	125
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	750

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	17%
Edinburgh workers as a percentage of the total labour force	22%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	16%
Percentage of the families with at least one member working in Edinburgh	35%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Rosewell as a percentage of the total number of families in the settlement.	30%
B. Families who have moved to Rosewell from the local area as a percentage of the total number of families in the settlement.	47%
C. Families who have moved to Rosewell from Edinburgh as a percentage of the total number of families in the settlement.	6%
D. Families who have moved to Rosewell from elsewhere as a percentage of the total number of families in the settlement	17%

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 25%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 16%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 36%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 29%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 15%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 29%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 50%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 40%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 80%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 17%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 12%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 24%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 55%
(b) Bus — 44%
(c) Train

SECTION V

SHOPPING

Everyday Shopping (1) Rosewell & Vans 80% (4) Edinburgh 4%
(2) Dalkeith 12% (5)
(3) Bonnyrigg 4% (6)

1. Percentage of the families in Rosewell making one shopping trip into Edinburgh in the previous week 35%

2. Percentage of the families in Rosewell making more than one shopping trip into Edinburgh in the previous week 10%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Rosewell making one visit to the cinema or theatre anywhere in the past two weeks 19%

2. Percentage of the families in Rosewell making more than one visit to the cinema or theatre anywhere in the past two weeks 6%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 75%

TABLE 29

Population of Rosewell, 1951-1965		
Year	Population	% decrease
1951	1,930	
1954	1,800*	- 6.7%
1961	1,800	0%
1965	1,750*	- 2.8%

* Registrar General's Mid-year estimate.

Until the early nineteenth century Penicuik was little more than a small market centre on the River North Esk, but with location there of several paper mills the town increased greatly in size. This period of expansion lasted until 1881 and was then followed by a period of falling population, but since the last war growth has been very rapid. (Table 30).

The paper industry continues to employ many people, which has meant that the need to travel into Edinburgh for work has been less than in most other towns in the Esk Basin. This fact was clearly illustrated in the workplace statistics published in the 1951 census (Table 7) and this was still the case in 1961 (Table 31) despite the subsequent decline in the coal mining industry of the area.

An analysis of the industrial employment statistics available for Penicuik in 1955 and 1965 (Table 32) clearly established the importance of the paper industry since the remaining firms in the burgh are very small. The number of N.C.B. workers living in the town fell from 350 to 288 during the same period, but this loss was counterbalanced by

TABLE 30

The population of the Burgh of: **Penicuik, 1841-1961**

Year	Population	% increase	Year	Population	% increase
1841	907		1901	3,574	- .9
1851	-		1911	2,736	-20.6
1861	1,570		1921	2,673	- 2.3
1871	2,157	37.4	1931	2,750	2.9
1881	3,793	75.9	1951	4,256	54.8
1891	3,606	- 4.9	1961	5,824	36.8

Source: Census of Scotland

TABLE 31

The Burgh of **Penicuik** :Workplace Statistics 1961

	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Number of economically active people	1,860		780		2,640	
Movement out of the burgh to work	870	47	370	47	1,240	47
Movement into Edinburgh to work	210	11	230	30	440	17
Movement to Midlothian to work	550	30	90	12	640	24

Source: Census of Scotland 1961
Workplace tables, Table 1

TABLE 32

Industrial employment in the Burgh of Penicuik, 1955 and 1965

Industry	Male		Female		Total	
	1955	1965	1955	1965	1955	1965
Paper	894	1,078	378	472	1,272	1,550
Food	27	30	10	10	37	40
Sawmilling	24	24	-	-	24	24
Brass Founding	17	20	-	-	17	20
New Industries						
Plastics	-	33	-	33	-	66
Photographic	-	20	-	40	-	60
Photo Chemicals	-	13	-	1	-	14
Engineering	-	10	-	30	-	40
TOTAL	962	1,228	388	586	1,350	1,814

Source: Midlothian County Development Plan, County Records and Personal Survey.

the expansion of the paper making firms and the opening of several new factories.

On Tables 8 and 9 the retail and service statistics would seem to indicate that there was a large number of shops in Penicuik, but that they were probably small and unspecialised. On the other hand the quite high per capita turnover reflects the town's role as a small local area shopping centre, particularly for food and convenience goods. The Midlothian County Council shopping survey[15] emphasised the fact that there were no alternative retail foci for the people living in the

15. Midlothian County Council, op.cit., 3.

surrounding districts and that many people living in Penicuik did their daily shopping in Edinburgh.

With the development of a very large private housing estate since 1961 the number of people living in Penicuik has risen by 1,100 to 6,884, and according to the building firm's sales representative many of these new residents work in Edinburgh. However, the increase in industrial employment in the burgh has to a large extent offset this increased commuter element. It is therefore felt that the proportion of the town's labour force working in the city is still approximately the same as that recorded in the 1961 census, a figure well below the level that would be necessary to make Penicuik part of Edinburgh's rural-urban fringe.

To the west of the Pentland Hills many of the villages beyond the Green Belt are located in a rich agricultural area and being more attractive than the mining settlements of the Esk Basin they have emerged as important dormitory settlments.

Balerno had already become part of Edinburgh's fringe area during the inter-war period. However, since house building was resumed in 1950 the village has grown quite considerably, partly as a result of additional county council houses located there, but mainly through the development of two large private housing estates. The results of a survey of the village (Table 33) indicate that it has become increasingly employment-orientated towards Edinburgh and that this was most marked among those families that had moved into Balerno from other parts of the country. This was largely due to the fact that there were no other areas within or close to the city where the cost and standard of the houses were comparable. On the other hand families which had always lived in the village have tended to retain their employment ties with the local area.

TABLE 33

Name of the village BALERNO

Population of the village	1,830 (1965)
Total number of houses in the village	500
Total number of houses receiving a questionnaire	400
Total number of questionnaires returned	270
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	600

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	12%
Edinburgh workers as a percentage of the total labour force	67%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	69%
Percentage of the families with at least one member working in Edinburgh	77%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Balerno as a percentage of the total number of families in the settlement.	9%
B. Families who have moved to Balerno from the local area as a percentage of the total number of families in the settlement.	9%
C. Families who have moved to Balerno from Edinburgh as a percentage of the total number of families in the settlement.	32%
D. Families who have moved to Balerno from elsewhere as a percentage of the total number of families in the settlement	50%

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 37%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 39%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 33%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 66%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 55%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 60%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 69%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 70%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 67%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 74%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 76%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 70%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 76%
(b) Bus — 24%
(c) Train —

SECTION V

SHOPPING

Everyday Shopping

(1)	Balerno & Vans	69%	
(2)	Currie	17%	(4)
(3)	Edinburgh	14%	(5)
			(6)

1. Percentage of the families in Balerno making one shopping trip into Edinburgh in the previous week 69%

2. Percentage of the families in Balerno making more than one shopping trip into Edinburgh in the previous week 23%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Balerno making one visit to the cinema or theatre anywhere in the past two weeks 23%

2. Percentage of the families in Balerno making more than one visit to the cinema or theatre anywhere in the past two weeks 4%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 97%

Shopping habits are also strongly influenced by the proximity of Edinburgh since the village shops only cater for basic day to day food and confectionery demands. The city, as would be expected, is the dominant entertainment centre for the people living in Balerno. An indication of the relatively high proportion of upper class families now living in the village is given by the fact that despite an excellent bus service into the city the overwhelming majority of commuters travel by car (Table 33).

Since Balerno has already become an important dormitory settlement for people working in Edinburgh and this is likely to increase as the private housing estates now under construction are completed the village's earlier fringe classification has to be confirmed.

With the decline in the demand for building stone during this century many people living in the quarrying and agricultural village of Ratho were forced to seek employment in Edinburgh, the only place where work was available. This movement increased considerably as a result of the location of a county council housing estate in the village during the 1930's. Since then the number of council houses has risen from 32 in 1939 to 239 in 1965 and a survey established that at the present time 62% of Ratho's workers have jobs in the city (Table 34). Commuting is particularly important among those families that had formerly lived in the local area or came from Edinburgh, whereas Ratho families would appear to have maintained quite strong employment links with the surrounding district. It is interesting to note that families coming from other parts of the country are also little influenced by the nearby city which would seem to indicate that Ratho was chosen as a place to live because these people had jobs in the local area.

The village shops and mobile vans meet the everyday requirements of

TABLE 34

Name of the village RATHO

Population of the village 1,100(1965)

Total number of houses in the village 810

Total number of houses receiving a questionnaire 300

Total number of questionnaires returned 150

Estimated total Labour force of the village (Based on the census enumeration data and the survey material) 403

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families 15%

Edinburgh workers as a percentage of the total labour force 62%

Heads of family working in Edinburgh as a percentage of the total number of heads of families who work. 68%

Percentage of the families with at least one member working in Edinburgh 77%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Ratho as a percentage of the total number of families in the settlement. 20%

B. Families who have moved to Ratho from the local area as a percentage of the total number of families in the settlement. 20%

C. Families who have moved to Ratho from Edinburgh as a percentage of the total number of families in the settlement. 37%

D. Families who have moved to Ratho from elsewhere as a percentage of the total number of families in the settlement 23%

Table 34 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	40%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	36%
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	45%
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	77%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	67%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	86%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	91%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	71%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	38%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	50%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	17%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	63%
	(b) Bus	37%
	(c) Train	

SECTION V

SHOPPING

Everyday Shopping (1) Ratho & Vans 85% (4) Currie 3%
(2) Balerno 7% (5)
(3) Edinburgh 5% (6)

1. Percentage of the families in Ratho making one shopping trip into Edinburgh in the previous week 65%

2. Percentage of the families in Ratho making more than one shopping trip into Edinburgh in the previous week 22%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Ratho making one visit to the cinema or theatre anywhere in the past two weeks 13%

2. Percentage of the families in Ratho making more than one visit to the cinema or theatre anywhere in the past two weeks 5%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

the villagers, but Edinburgh is an important centre for weekly shopping outings (Table 34).

In their policy of expansion for Ratho, Midlothian County Council would appear to have taken advantage of the nearness of the city, since no attempt was made to attract industries to provide imployment for the great increase in the village population. The resulting high level of job-orientation towards Edinburgh makes Ratho an integral part of the city's fringe area.

The villages of Ratho Station and Newbridge were originally two separate communities and although they are still regarded as such the development of two county council housing estates and the recent opening of an industrial estate have joined them together. The council houses at Newbridge were built during the 1930's and were later joined by a group of prefabricated houses, whereas the housing estate at Ratho Station was mainly developed after 1956.

The almost complete absence of local industry meant that commuting to work in Edinburgh, the nearest source of employment, has been a characteristic of both settlements for many years. This was especially true in the case of Ratho Station, but D. B. Marshall's "Chunky Chick" factory and Microwave electronics at Newbridge did provide jobs for a few people. However, the location of three factories, Uni-Royal Tyres and Hill-Thomson whisky bottlers, both of which have moved out from Edinburgh, and a new enlarged factory for Microwave electronics on the recently opened industrial estate since 1963 have greatly increased the local employment potential. These firms were attracted to this district by the presence of the industrial estate, its Development Area status and Midlothian County Council's promise to develop a large estate at Ratho Station to house those working in the new factories. However,

TABLE 35

Industrial employment in Ratho Station & Newbridge, 1967	
Industry	Number of Employees
D. B. Marschall	400
Uni-Royal	70
Microwave	70
Hill-Thomson	400
TOTAL	940

Source: Personal Survey

sufficient houses have not been built to meet this demand, and this means that many people have to travel out from Edinburgh each day.

A survey of Ratho Station found that 54% of the village labour force still works in Edinburgh (Table 36), an indication that the shortage of local jobs when the council estate was first developed has not yet been counterbalanced by the additional houses built when the new industries were established. This would appear to be the main reason why a large proportion of the workers from families that have always lived in the village commute into the city, whereas families from Edinburgh and elsewhere, since many had moved to Ratho Station because they had jobs on the industrial estate, are much less dependent on the city for work.

Newbridge with a limited amount of local industry displays slightly different employment characteristics (Table 37). The survey established that 40% of all those employed work in Edinburgh, however, in contrast to

TABLE 36

Name of the village RATHO STATION

Population of the village	630 (1965)
Total number of houses in the village	250
Total number of houses receiving a questionnaire	200
Total number of questionnaires returned	100
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	375

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	15%
Edinburgh workers as a percentage of the total labour force	54%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	43%
Percentage of the families with at least one member working in Edinburgh	68%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Ratho Stn. as a percentage of the total number of families in the settlement.	11%
B. Families who have moved to Ratho Stn. from the local area as a percentage of the total number of families in the settlement.	45%
C. Families who have moved to Ratho Stn. from Edinburgh as a percentage of the total number of families in the settlement.	24%
D. Families who have moved to Ratho Stn. from elsewhere as a percentage of the total number of families in the settlement	20%

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 67%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 43%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 100%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 57%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 50%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 67%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 57%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 35%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 85%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 44%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 36%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 54%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 31%

(b) Bus — 69%

(c) Train —

SECTION V

SHOPPING

Everyday Shopping

(1)	Ratho Statn. & Vans	78% (4)
(2)	Edinburgh	16% (5)
(3)	Broxburn	6% (6)

1. Percentage of the families in Ratho Stn. making one shopping trip into Edinburgh in the previous week — 64%

2. Percentage of the families in Ratho Stn. making more than one shopping trip into Edinburgh in the previous week — 23%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Ratho Stn. making one visit to the cinema or theatre anywhere in the past two weeks — 19%

2. Percentage of the families in Ratho Stn. making more than one visit to the cinema or theatre anywhere in the past two weeks — 9%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh — 67%

TABLE 37

Name of the village	NEWBRIDGE
Population of the village	390(1965)
Total number of houses in the village	124
Total number of houses receiving a questionnaire	124
Total number of questionnaires returned	62
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	199

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	12%
Edinburgh workers as a percentage of the total labour force	39%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	30%
Percentage of the families with at least one member working in Edinburgh	44%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Newbridge as a percentage of the total number of families in the settlement.	18%
B. Families who have moved to Newbridge from the local area as a percentage of the total number of families in the settlement.	44%
C. Families who have moved to Newbridge from Edinburgh as a percentage of the total number of families in the settlement.	23%
D. Families who have moved to Newbridge from elsewhere as a percentage of the total number of families in the settlement	15%

Table 37 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 29%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 30%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 29%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 27%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 17%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 38%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 53%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 50%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 57%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 67%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 43%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 100%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 33%
(b) Bus — 67%
(c) Train —

SECTION V

SHOPPING

Everyday Shopping

(1)	Newbridge & Vans	81%	(4)
(2)	Edinburgh	12%	(5)
(3)	Broxburn	7%	(6)

1. Percentage of the families in Newbridge making one shopping trip into Edinburgh in the previous week 58%

2. Percentage of the families in Newbridge making more than one shopping trip into Edinburgh in the previous week 25%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Newbridge making one visit to the cinema or theatre anywhere in the past two weeks 14%

2. Percentage of the families in Newbridge making more than one visit to the cinema or theatre anywhere in the past two weeks 7%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 75%

Ratho Station, those families that had always lived in Newbridge or who came from the local area are the least dependent on the city as a workplace. It should be emphasised that this is the normal situation found in these older settlements around Edinburgh which have long-established ties with the local area.

At the present time therefore, both Ratho Station and Newbridge are quite strongly job-orientated towards Edinburgh and this makes them part of the city's fringe area. However, as the local industries expand and multiply, and more houses are provided for those working on the industrial estate, the present commuting pattern will change and make a re-consideration of the fringe classification of both settlements essential.

Due to the fact that it has been established that Balerno, Ratho, Ratho Station and Newbridge form part of Edinburgh's rural-urban fringe the settlements situated further to the west must also be studied.

The villages of Kirknewton, East Calder and Mid-Calder, located beyond Balerno, have many common characteristics which draw them into the city's fringe area. The gradual decline of the oil-shale industry during the last sixty years greatly reduced the number of local jobs and since no new industries have been established and agriculture has been unable to absorb the surplus labourforce more and more people have had to travel into Edinburgh to work. In the case of East Calder, the only community large enough to be included within the 1951 census workplace tables (Table 7), commuting was found to involve 29% of all those who worked.

A survey of all three villages established that the level of job-dependence on the city had continued to grow in importance and now involves approximately one half of the workforce of each community,

TABLE 38

Name of the village KIRKNEWTON

Population of the village	600 (1965)
Total number of houses in the village	177
Total number of houses receiving a questionnaire	100
Total number of questionnaires returned	47
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	270

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	10%
Edinburgh workers as a percentage of the total labour force	52%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	46%
Percentage of the families with at least one member working in Edinburgh	60%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Kirknewton as a percentage of the total number of families in the settlement.	34%
B. Families who have moved to Kirknewton from the local area as a percentage of the total number of families in the settlement.	48%
C. Families who have moved to Kirknewton from Edinburgh as a percentage of the total number of families in the settlement.	8%
D. Families who have moved to Kirknewton from elsewhere as a percentage of the total number of families in the settlement	10%

Table 38 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	46%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	42%
3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	51%
B.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	63%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	56%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	73%
C.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	38%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	38%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	41%
D.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	33%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	18%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	60%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by (a) Car	80%
(b) Bus	20%
(c) Train	

Table 38 continued

SECTION V

SHOPPING

Everyday Shopping	(1) Kirknewton & Vans	80%	(4)
	(2) Edinburgh	14%	(5)
	(3) East Calder	6%	(6)

1. Percentage of the families in Kirknewton making one shopping trip into Edinburgh in the previous week 80%

2. Percentage of the families in Kirknewton making more than one shopping trip into Edinburgh in the previous week 16%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Kirknewton making one visit to the cinema or theatre anywhere in the past two weeks 18%

2. Percentage of the families in Kirknewton making more than one visit to the cinema or theatre anywhere in the past two weeks 6%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

TABLE 39

Name of the village	EAST CALDER
Population of the village	2,021(1961)
Total number of houses in the village	631
Total number of houses receiving a questionnaire	300
Total number of questionnaires returned	150
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	1,010

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	6%
Edinburgh workers as a percentage of the total labour force	50%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	43%
Percentage of the families with at least one member working in Edinburgh	59%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in East Calder as a percentage of the total number of families in the settlement.	28%
B. Families who have moved to East Calder from the local area as a percentage of the total number of families in the settlement.	44%
C. Families who have moved to East Calder from Edinburgh as a percentage of the total number of families in the settlement.	16%
D. Families who have moved to East Calder from elsewhere as a percentage of the total number of families in the settlement	13%

Table 39 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 44%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 25%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 63%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 62%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 40%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 86%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 30%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 20%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 40%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 33%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 0%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 100%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 66%
(b) Bus — 34%
(c) Train

SECTION V

SHOPPING

Everyday Shopping (1) East Calder & Vans 87%
(2) Edinburgh 13%
(3)
(4)
(5)
(6)

1. Percentage of the families in East Calder making one shopping trip into Edinburgh in the previous week — 47%

2. Percentage of the families in East Calder making more than one shopping trip into Edinburgh in the previous week — 13%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in East Calder making one visit to the cinema or theatre anywhere in the past two weeks — 16%

2. Percentage of the families in East Calder making more than one visit to the cinema or theatre anywhere in the past two weeks — 0%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh — 80%

TABLE 40

Name of the village MID CALDER

Population of the village	594(1961)
Total number of houses in the village	230
Total number of houses receiving a questionnaire	120
Total number of questionnaires returned	57
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	368

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	11%
Edinburgh workers as a percentage of the total labour force	48%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	40%
Percentage of the families with at least one member working in Edinburgh	56%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Mid Calder as a percentage of the total number of families in the settlement.	30%
B. Families who have moved to Mid Calder from the local area as a percentage of the total number of families in the settlement.	48%
C. Families who have moved to Mid Calder from Edinburgh as a percentage of the total number of families in the settlement.	10%
D. Families who have moved to Mid Calder from elsewhere as a percentage of the total number of families in the settlement	12%

Table 40 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	42%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	36%
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	49%
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	58%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	51%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	67%
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	30%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	29%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	31%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	40%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	16%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	70%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	75%
	(b) Bus	25%
	(c) Train	

Table 40 continued

SECTION V

SHOPPING

Everyday Shopping

(1)	Mid Calder & Vans	80%	(4)
(2)	East Calder	10%	(5)
(3)	Edinburgh	10%	(6)

1. Percentage of the families in Mid Calder making one shopping trip into Edinburgh in the previous week 49%

2. Percentage of the families in Mid Calder making more than one shopping trip into Edinburgh in the previous week 15%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Mid Calder making one visit to the cinema or theatre anywhere in the past two weeks 15%

2. Percentage of the families in Mid Calder making more than one visit to the cinema or theatre anywhere in the past two weeks 3%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 70%

(Tables 38, 39 and 40). A point worthy of note is that the families of local origin have come to depend more heavily on Edinburgh as a place of employment than the families that have moved into these communities from other parts of the country. No doubt this is largely because the latter group chose to live in the villages because they had jobs in the district. This commuting pattern contrasts with the position found in all of the other settlements studied, apart from Ratho, and reflects the long period over which there has been a shortage of jobs in the area.

The local shops provide almost all of the everyday food and confectionery requirements of these villages, but the quite large number of women who work in Edinburgh has resulted in the city rating as an important centre not only for all specialised purchases, but also for some everyday shopping (Tables 38, 39 and 40). The same tables also indicate that Edinburgh is the main destination for outings to the cinema and theatre.

The inclusion of Kirknewton, East Calder and Mid-Calder within the city's rural-urban fringe made an investigation of Livingston New Town essential. When fully developed, it is proposed that this town should act as a regional centre and this will no doubt substantially reduce Edinburgh's influence over the communities in this district. However, Livingston is still in the initial stages of development and has not yet begun to compete strongly with the city. In the new town itself the house building programme has been closely adjusted to keep pace with the availability of industrial employment with the result that there is little or no movement into Edinburgh to work.* Since this is the case there are no grounds for including Livingston within Edinburgh's fringe area.

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* Interview with New Town Development Corporation Officials

TABLE 41

Name of the village PUMPHERSTON

Population of the village	1,458 (1961)
Total number of houses in the village	438
Total number of houses receiving a questionnaire	210
Total number of questionnaires returned	98
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	744

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	11%
Edinburgh workers as a percentage of the total labour force	22%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	16%
Percentage of the families with at least one member working in Edinburgh	30%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Pumpherston as a percentage of the total number of families in the settlement.	35%
B. Families who have moved to Pumpherston from the local area as a percentage of the total number of families in the settlement.	47%
C. Families who have moved to Pumpherston from Edinburgh as a percentage of the total number of families in the settlement.	6%
D. Families who have moved to Pumpherston from elsewhere as a percentage of the total number of families in the settlement	12%

Table 41 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 21%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 15%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 28%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 25%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 20%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 29%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 18%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 13%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 24%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 18%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 2%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 36%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 30%
(b) Bus — 70%
(c) Train —

Table 41 continued

SECTION V

SHOPPING

Everyday Shopping (1) Pumpherston & Vans 75% (4) Edinburgh 3%
(2) Uphall 14% (5)
(3) Bathgate 8% (6)

1. Percentage of the families in Pumpherston making one shopping trip into Edinburgh in the previous week 20%

2. Percentage of the families in Pumpherston making more than one shopping trip into Edinburgh in the previous week 3%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Pumpherston making one visit to the cinema or theatre anywhere in the past two weeks 19%

2. Percentage of the families in Pumpherston making more than one visit to the cinema or theatre anywhere in the past two weeks 5%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 50%

The neighbouring village of Pumpherston had its origins in the nineteenth century growth of the West Lothian oil-shale industry, but this source of employment has been declining throughout the present century and ceased to exist with the recent closure of the refinery in the village. The fact that this loss of local jobs has taken place over many years meant that large numbers of people were not thrown out of work at the one time, and the small industries at Broxburn, along with the coal mines in the Bathgate area have been able to absorb most of Pumpherston's workforce. The 1951 census enumerated that 12% of the village labour force worked in Edinburgh (Table 7), and a survey of the community established that at the present time this proportion is 22% (Table 41). This low figure is largely due to the new industries that have been opened at both Livingston and Broxburn within easy reach of the village. It is therefore felt that Pumpherston should be excluded from Edinburgh's rural-urban fringe area.

TABLE 42

Uphall District of County*, Workplace Statistics, 1961						
	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Economically active people	3,720		1,820		5,540	
Movement out of D.C. to work	2,060	55	880	49	2,940	53
Movement into Edinburgh to work	840	23	700	39	1,540	28
Movement into West Lothian to work	600	16	120	7	720	13
Movement into Midlothian to work	320	9	50	3	370	7
Movement into Stirling County to work	200	5	-	-	200	4

Source: Census of Scotland, 1961, Workplace tables.

The oil-shale industry was also largely responsible for the growth of Broxburn and Uphall, two settlements situated to the west of Newbridge. As this industry declined both towns were faced with increasing

employment difficulties since the local factories could only offer work to a small proportion of those who had lost their jobs. Consequently Edinburgh and Bathgate emerged as important recipients of workers from Broxburn and Uphall. In 1951 the census recorded that 21% of their labour forces worked in Edinburgh (Table 7) and ten years later this had risen to 28% (Table 42).

This level of job-orientation towards the city was almost high enough to accord with fringe classification. However, as was the case with Dalkeith, the location of an industrial estate at East Mains and the opening of several factories has radically altered the local employment situation (Table 43), since a total of 1,585 new jobs have become available since 1966.

TABLE 43

Industrial employment on the East Mains Industrial Estate, 1967

Industry	Year Established	Male Employees	Female Employees	Total Employees
Golden Wonder Crisps	1966	200	300	500
Dynamco Instruments	1967	150	450	600
A. Bell(Distillers)	1967	150	80	230
Victoria Bedding	1967	60	-	60
Alna Press(Printers)	1967	20	-	20
Furnace Treatments	1967	50	-	50
United Biscuits	1967	50	10	60
Swanedin Units(Plastics)	1967	20	-	20
Crompton Parkinson	1967	15	20	35
TOTAL		715	860	1,585

Source: West Lothian County Council

Since it was impossible to carry out a survey of two such large towns in order to establish the influence of the industrial estate on the number of people travelling to work in Edinburgh, an analysis was made of the place of residence of the people employed by the new firms. Unfortunately exact records were not available for all of the factories listed on Table 43, but the personnel officer of each firm estimated that between 35% and 40% of their workers lived in Broxburn and Uphall. The places of residence of those employed by Golden Wonder Crisps Ltd. are given on Table 44.

TABLE 44

Place of residence of the labour force of Golden Wonder Crisps Ltd., East Mains Estate, Broxburn, 1967

Town	Number	Percentage of total
Broxburn and Uphall	180	36
Winchburgh	61	12
Fauldhouse	54	11
Whitburn	40	8
Bathgate	36	7
Harthill	32	7
Blackburn	30	6
Polbeth	29	6
Edinburgh	12	2
Stoneyburn	12	2
Pumpherston	10	2
Armadale	4	1
TOTAL	500	100%

Source: Personnel Officer, Golden Wonder Crisps.

These new industries have greatly reduced the need for people to leave Broxburn and Uphall to take jobs in Edinburgh and this has given both towns a level of employment independence from the city which excludes them from the fringe area.

The village of Kirkliston lies just beyond the Green Belt to the north west of Edinburgh, a long established agricultural village that has been expanded considerably through the location there of a large number of county council houses and more recently by the development of a private housing estate. The absence of any local industries apart from a distillery, meant that for many years there has been a high level of job-dependence on Edinburgh. A survey of the village confirmed this conclusion since it established that 53% of Kirkliston's total labour force worked in the city, but that almost all of the wage earners living on the partly completed private estate commuted into Edinburgh (Table 45). As has been found to be the case in most of the older villages around the city the families of local origin are less dependent on Edinburgh for work than the families from other parts of the country.

The city features quite strongly as both a daily and weekly shopping centre for people living in the village, and is also the destination for all visits to the cinema or theatre.

On the basis of the large proportion of Kirkliston's workforce who commute daily into Edinburgh the village must be considered to form an integral part of the city's rural-urban fringe. In addition it is almost certain that this position will be strengthened as more houses are completed on the private estate at present being developed and when work is begun on another site close to the village.

Two miles west of Kirkliston on the road to Linlithgow is the town of Winchburgh, a community founded at the peak of the oil-shale industry

TABLE 45

Name of the village KIRKLISTON

Population of the village	1,249(1961)
Total number of houses in the village	500
Total number of houses receiving a questionnaire	400
Total number of questionnaires returned	220
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	750

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	14%
Edinburgh workers as a percentage of the total labour force	53%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	50%
Percentage of the families with at least one member working in Edinburgh	60%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Kirkliston as a percentage of the total number of families in the settlement.	31%
B. Families who have moved to Kirkliston from the local area as a percentage of the total number of families in the settlement.	26%
C. Families who have moved to Kirkliston from Edinburgh as a percentage of the total number of families in the settlement.	26%
D. Families who have moved to Kirkliston from elsewhere as a percentage of the total number of families in the settlement	17%

Table 45 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	38%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	32%
3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	50%
B.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	42%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	29%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	59%
C.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	71%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	82%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	56%
D.	
1. Total number of people working in Edinburgh as a percentage of all the people in this group who work	68%
2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	57%
3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by (a) Car	53%
(b) Bus	47%
(c) Train	

SECTION V

SHOPPING

Everyday Shopping (1) Kirkliston & Vans 85% (4)
(2) Edinburgh 15% (5)
(3) (6)

1. Percentage of the families in Kirkliston making one shopping trip into Edinburgh in the previous week 60%

2. Percentage of the families in Kirkliston making more than one shopping trip into Edinburgh in the previous week 17%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Kirkliston making one visit to the cinema or theatre anywhere in the past two weeks 16%

2. Percentage of the families in Kirkliston making more than one visit to the cinema or theatre anywhere in the past two weeks 7%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

TABLE 46

Name of the village	WINCHBURGH
Population of the village	2,457(1961)
Total number of houses in the village	750
Total number of houses receiving a questionnaire	300
Total number of questionnaires returned	150
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	1,175

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	7%
Edinburgh workers as a percentage of the total labour force	52%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	47%
Percentage of the families with at least one member working in Edinburgh	75%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Winchburgh as a percentage of the total number of families in the settlement.	29%
B. Families who have moved to Winchburgh from the local area as a percentage of the total number of families in the settlement.	35%
C. Families who have moved to Winchburgh from Edinburgh as a percentage of the total number of families in the settlement.	29%
D. Families who have moved to Winchburgh from elsewhere as a percentage of the total number of families in the settlement	7%

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 67%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 38%

3. Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work. — 100%

B.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 49%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 40%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 55%

C.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 50%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work — 60%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 40%

D.

1. Total number of people working in Edinburgh as a percentage of all the people in this group who work — 100%

2. Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work. — 100%

3. Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work — 100%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by

(a) Car — 15%
(b) Bus — 85%
(c) Train

Table 46 continued

/

SECTION V

SHOPPING

Everyday Shopping (1) Winchburgh & Vans 57% (4) South Queensferry 7%
(2) Edinburgh 29% (5)
(3) Broxburn 7% (6)

1. Percentage of the families in Winchburgh making one shopping trip into Edinburgh in the previous week 55%

2. Percentage of the families in Winchburgh making more than one shopping trip into Edinburgh in the previous week 32%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Winchburgh making one visit to the cinema or theatre anywhere in the past two weeks 21%

2. Percentage of the families in Winchburgh making more than one visit to the cinema or theatre anywhere in the past two weeks 4%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

in the area. As has already been noted with regard to Broxburn and Uphall, Edinburgh filled the employment gap which followed the decline of the local shale mines. In 1951 the proportion of the town's labour force working in the city was found to be 20% (Table 7) and since no new local industries were established until the opening of the first factories on the industrial estate at Broxburn in 1966 it was felt that a survey of the community should be undertaken since the 1961 Census of Scotland workplace tables give no data specifically for Winchburgh. The questionnaire survey (Table 46) established that Edinburgh's role as a place of employment had increased considerably and now involved over 50% of all those in the village who worked. This high figure was made up of equal proportions from every family grouping which is indicative of the long period over which there has been an acute shortage of jobs in the district. The large number of women who work in Edinburgh accounts for its importance as a daily as well as a weekly shopping centre.

The existence of such strong employment links with the city draws Winchburgh into the rural-urban fringe. However, it will be interesting to see whether or not the opening of more factories on the Broxburn industrial estate will result in the weakening of these ties.

Linlithgow, the county town of West Lothian, is a thriving administrative, industrial and service centre. These factors in addition to remoteness have reduced Edinburgh's influence over this town to little more than its role as the regional capital. Despite good road and rail links with the city only 9% of Linlithgow's labour force work in Edinburgh and this is well below the level necessary if the burgh was to be regarded as part of the city's fringe area.

During the 1930's the long established agricultural village of Dalmeny was chosen by West Lothian County Council as the location for an

TABLE 47

Name of the village DALMENY

Population of the village	608 (1961
Total number of houses in the village	120
Total number of houses receiving a questionnaire	120
Total number of questionnaires returned	58
Estimated total Labour force of the village (Based on the census enumeration data and the survey material)	192

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families	13%
Edinburgh workers as a percentage of the total labour force	38%
Heads of family working in Edinburgh as a percentage of the total number of heads of families who work.	23%
Percentage of the families with at least one member working in Edinburgh	51%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Dalmeny as a percentage of the total number of families in the settlement.	30%
B. Families who have moved to Dalmeny from the local area as a percentage of the total number of families in the settlement.	24%
C. Families who have moved to Dalmeny from Edinburgh as a percentage of the total number of families in the settlement.	6%
D. Families who have moved to Dalmeny from elsewhere as a percentage of the total number of families in the settlement	40%

Table 47 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	33%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	0%
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	63%
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	32%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	25%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	43%
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	57%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	67%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	50%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	40%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	35%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	44%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	27%
	(b) Bus	64%
	(c) Train	9%

Table 47 continued

SECTION V

SHOPPING

Everyday Shopping (1) Dalmeny & Vans 65% (4)
(2) South Queensferry 28% (5)
(3) Edinburgh 7% (6)

1. Percentage of the families in Dalmeny making one shopping trip into Edinburgh in the previous week 44%

2. Percentage of the families in Dalmeny making more than one shopping trip into Edinburgh in the previous week 11%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Dalmeny making one visit to the cinema or theatre anywhere in the past two weeks 24%

2. Percentage of the families in Dalmeny making more than one visit to the cinema or theatre anywhere in the past two weeks 6%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

estate of almost one hundred houses. The occupants of these houses considerably outnumber those living in the older part of the village. A survey of Dalmeny (Table 47) found that 38% of the village workforce commuted daily into Edinburgh. This proportion is not as high as might have been expected since there is no industry in Dalmeny, but must be largely due to the proximity of South Queensferry where some of the village people have been able to find employment. The shopping pattern is very similar to that found in the other villages, with Edinburgh acting as the regional centre apart from the everyday shopping done in the city by the few women who work there.

On the basis of this information Dalmeny must be included within Edinburgh's fringe area, but as was the case with Newbridge, the presence of accessible local industries has greatly reduced the level of job-orientation towards the city.

By virtue of its role as a ferry port on the Firth of Forth and the presence of several small industries, South Queensferry has grown steadily over the past hundred years, apart from an anomalous period between 1921 and 1931 when a sudden drop in population was caused by the fluctuations in the number of naval personnel in the town (Table 48)

Local industries have not, however, been large enough to employ all the people living in theburgh and this explains the fact that 29% of South Queensferry's labour force was recorded as working in Edinburgh at the time of the 1951 census. Ten years later the census workplace tables showed that there had been a slight decline in the importance of commuting into the city (Table 49).

However, it would appear most probable that South Queensferry's job-dependence on Edinburgh has increased since 1961. This has been mainly the result of the construction of the motorway between the city

TABLE 48

The population of the Burgh of South Queensferry, 1841-1961					
Year	Population	% Increase	Year	Population	% Increase
1841	721		1901	1,850	20.8
1851	720	0%	1911	2,000	8.1
1861	921	27.6	1921	2,193	9.7
1871	945	2.6	1931	1,798	- 18.0
1881	1,354	43.3	1951	2,486	38.3
1891	1,531	13.1	1961	2,926	21.7

Source: Census of Scotland

TABLE 49

The Burgh of South Queensferry, Workplace Statistics, 1961						
	MALE		FEMALE		TOTAL	
	Number	% of total male labour force	Number	% of total female labour force	Number	% of total labour force
Economically active people	940		420		1,360	
Movement out of the burgh to work	480	51	230	55	710	52
Movement into Edinburgh to work	180	19	190	45	370	27
Movement into West Lothian to work	160	17	30	7	190	14
Movement into Fife to work	120	13	10	2	130	10

Source: Census of Scotland, 1961, Workplace Tables Table 1.

TABLE 50

Name of the village SOUTH QUEENSFERRY: NEW HOUSING ESTATE

Population of the village estimate (550)

Total number of houses in the village 200

Total number of houses receiving a questionnaire 75

Total number of questionnaires returned 50

Estimated total Labour force of the village (Based on the census enumeration data and the survey material) 240

SECTION I

EMPLOYMENT CHARACTERISTICS OF THE SETTLEMENT

Families with retired wage-earner as a percentage of the total number of families 0%

Edinburgh workers as a percentage of the total labour force 95%

Heads of family working in Edinburgh as a percentage of the total number of heads of families who work. 94%

Percentage of the families with at least one member working in Edinburgh 98%

SECTION II

FORMER PLACE OF RESIDENCE OF FAMILIES LIVING IN THIS SETTLEMENT

A. Families who have lived only in Sth. Queensferry as a percentage of the total number of families in the settlement. 0%

B. Families who have moved to Sth. Queensferry from the local area as a percentage of the total number of families in the settlement. 0%

C. Families who have moved to Sth. Queensferry from Edinburgh as a percentage of the total number of families in the settlement. 20%

D. Families who have moved to Sth. Queensferry from elsewhere as a percentage of the total number of families in the settlement 80%

Table 50 continued

SECTION III

EMPLOYMENT CHARACTERISTICS OF THE FAMILY GROUPS IDENTIFIED IN SECTION II

A.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	-
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	-
3.	Other members of families who work in Edinburgh as a percentage of the total numbers of other members of families in this group who work.	-
B.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	-
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	-
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	-
C.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	100%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work	100%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%
D.		
1.	Total number of people working in Edinburgh as a percentage of all the people in this group who work	97%
2.	Heads of family working in Edinburgh as a percentage of the total number of heads of family in this group who work.	93%
3.	Other members of families who work in Edinburgh as a percentage of the total number of other members of families in this group who work	100%

SECTION IV

TRAVEL TO WORK IN EDINBURGH

Percentage of people who work in Edinburgh who travel by	(a) Car	100%
	(b) Bus	-
	(c) Train	-

SECTION V

SHOPPING

Everyday Shopping	(1)	South Queensferry	90%	(4)
	(2)	Edinburgh	10%	(5)
	(3)			(6)

1. Percentage of the families in Sth. Queensferry making one shopping trip into Edinburgh in the previous week 70%

2. Percentage of the families in Sth. Queensferry making more than one shopping trip into Edinburgh in the previous week 50%

SECTION VI

VISITS TO THE CINEMA OR THEATRE

1. Percentage of the families in Sth Queensferry making one visit to the cinema or theatre anywhere in the past two weeks 30%

2. Percentage of the families in Sth. Queensferry making more than one visit to the cinema or theatre anywhere in the past two weeks 20%

3. Percentage of the total number of families making at least one visit to the cinema or theatre in the past two weeks who went only to Edinburgh 100%

and the Forth Road Bridge which has greatly facilitated travel to and from the burgh. This new road was very influential in the location of a large private housing estate in the town and as it was felt that the place of work of these new residents would have had a great effect on the fringe classification of South Queensferry, the estate was surveyed. As can be seen on Table 50 none of the families came from the town or the local area and almost all of the workers commuted into Edinburgh. Pleasant surroundings and fast access into the city were no doubt important factors in attracting many people who were unable to find suitable homes in the city.

In 1966 Hewlett-Packard, an electronics firm, established a new factory employing 410 people on the outskirts of the burgh. However, its effect on the employment situation in South Queensferry has been far less than would be expected because one of the major attractions to this particular location was the promise of ninety local authority houses for key workers who were to move with the firm from Bedford. These workers account for almost all of the people from the burgh employed by the firm, another ninety coming from Edinburgh and the remainder from neighbouring towns and villages. Proximity to the city, Development Area status and proximity to the airport were regarded as the main reasons for establishing the factory at South Queensferry.*

The town was not included in the 1950 Census of Distribution, but from the 1961 (Table 9) Census, it would appear that South Queensferry had a large number of small food and confectionery shops, but that it had little influence over the surrounding districts.

Improved access into Edinburgh has resulted in increased job-dependence

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* Interview with the Personnel Officer of Hewlett-Packard Ltd.

on the city, especially with the location of the private housing estate in the burgh. In addition many members of the families who moved to South Queensferry with Hewlett-Packard also work in the city. An interview with town officials confirmed this conclusion and they estimated that around 37% of the burgh's labour force now work in Edinburgh and this fact necessitates the inclusion of South Queensferry as part of the city's rural-urban fringe.

The opening of the Forth Road Bridge in 1964 greatly improved access between Edinburgh and the towns of south Fife, and many people who formerly used the train to travel into the city now come by bus or car. It would seem most likely that the bridge has resulted in an increase in the number of people living in Fife who now work in Edinburgh, but they still form only a very small proportion of the labour forces of the towns of Dunfermline, Rosyth, Inverkeithing and Aberdour. A much publicised private housing estate is being developed at Dalgety Bay, between Inverkeithing and Aberdour, and although a number of these attractive houses have been bought by people with jobs in Edinburgh they form a minority of the total number of residents. It is therefore felt that employment-orientation towards the city from the towns of south Fife is not great enough to extend the rural-urban fringe to the north side of the Firth of Forth.

All of the settlements around Edinburgh are well served by bus services operated by the Scottish Motor Traction Company (Fig. 75). The frequency of these services not only reflects the size of the communities, but is also largely dependent on the demand for transport into the city. The morning and evening rush hours are marked by an increase in bus frequency to facilitate the movement of large numbers of people in and out of Edinburgh. It should also be noted that all of the fringe towns

and villages are within 35 minutes bus travel time from the city centre. However, the increased use of the motor car must also be emphasised since in many instances this has reduced the number of people using the buses. The data tables for each of the villages surveyed gives a rough indication of the relative importance of both these forms of transport for those people working in Edinburgh.

The number and range of fringe industries around the city are limited to several isolated factories and groups that have survived from the pre-war era and the large industrialestate at Sighthill (Fig. 76), all of which are characterised by their closeness to the built-up area.

Isolated works are to be found at Granton where the gas works were located and the corrugated carton factory and printing ink factory at Corstorphine. The large open space formed by the Royal Park gives the railway yard at St. Leonard's, the breweries at Craigmillar and Mitchelhill's bakery at Peffermill the openness which makes them part of the fringe area. The Water of Leith retains its traditional association with fringe industry through the Scott's Porage Oats factory at West Mills Colinton, the tannery at Kinleith and the paper mill at Balerno.

The largest industrial complex in the city is at Sighthill where a large estate has been established by Edinburgh Corporation. Designed solely for industrial premises this area was chosen because of its good road access. It is divided into spacious lots suitable for modern single storey buildings with ample room for future expansion. The estate had to be located on the outskirts of the city because of the need for a great amount of land and since it has not been surrounded by the expanding urban area it forms an extensive fringe industrial area.

The expansion of the urban area has drawn all the railway yards except that at St. Leonard's into the city, but a recent addition has

been the automatic marshalling yard established at Millerhill. Opened in 1960, this yard is a replacement for the older facilities located within Edinburgh. It does in fact lie within the Green Belt, but planning permission was granted because there was no alternative site available and the area chosen had little amenity value, being on land subject to mining subsidence and surrounded by spoil heaps.

The need for large amounts of space has forced two second hand car lots and scrap yards out from the built-up area to Pentland and Gogarmount (Fig. 76).

Waste disposal raises many problems and in Edinburgh the city council have acquired several quarries and pits at Blackford, Hailes and Turnhouse for dumping purposes. They have also built an incinerator at Craigmillar to reduce waste to a more easily disposable state (Fig. 76).

Edinburgh's position as a cultural, educational and medical centre of great importance is reflected in the numerous institutions scattered around the periphery of the city.

Medical establishments especially convalescent homes, rest homes and mental hospitals in many cases try to combine a rural location with proximity to the urban area. This is clearly shown by the home for the mentally handicapped at Gogarburn and Dr. Barnardo's home for children at Balerno, while closer to the city there is an old people's home at Silverknowes, two children's homes at Hillwood and Liberton, two nursing homes at Corstorphine and Beechwood, a health clinic at Kingston and a general hospital at Fairmilehead.

The ring of private schools which had formed a conspicuous part of Edinburgh's fringe area during the nineteenth and early twentieth centuries had been surrounded by the expansion of the built-up area. However, the Royal High School at Barnton and Mary Erskine's School at

Ravelston have both been re-located from their former city centre buildings and have come to form part of the fringe. The Trefoil School for Physically Handicapped Children was specifically located at Gogar to be close to Edinburgh's medical facilities, yet have the advantages of rural surroundings.

Edinburgh University's science campus at West Mains has grown considerably since the last war and now forms a large teaching and research complex on the edge of the urban area. With the increase in student numbers, halls of residence have had to be built and one group of dormitories has been located at Rosehall overlooking the Royal Park. Lack of space for expansion in its present central situation has become an increasing problem for the Heriot-Watt University and it has been decided that in order to keep the university as a single unit it will be re-located outside the city. Negotiations to purchase the Riccarton estate at Currie for this purpose are being undertaken at the present time. After having been located in both Dunfermline and Aberdeen the Dunfermline College of Physical Education campus and playing fields have been established in the grounds of Cramond House on the outskirts of Edinburgh. A new medical research centre, the Madam Curie Cancer Research Institute, has been located on Frogston Road West where a modern specially designed building used for both treatment and research has been constructed. The Department of Agriculture and Fisheries has bought and converted a large house at Loanhead for veterinary research purposes. The experimental seed plant and animal stations at East Craigs, Nether Liberton, Boghall and Bush House all form an integral part of the East of Scotland College of Agriculture, whose headquarters are adjacent to the University of Edinburgh science campus at West Mains.

Edinburgh being the capital of Scotland and a world renowned

educational and research city, it has become a very active conference centre. Although most of these gatherings can be catered for within the urban area, the Church of Scotland have opened Carberry Tower located a mile south east of Musselburgh as a residential centre where both religious and secular groups can reside and meet, within easy reach of Edinburgh (Fig. 79).

The only religious institution to retain its fringe classification is Woodfield Convent in the valley of the Water of Leith, at Colinton.

The barracks and training ground at Dreghorn continue to form part of the fringe as do several more recently established military facilities (Fig. 80). Part of the grounds of New Hailes House, Musselburgh, have been converted into a training area for the Territorial Army and a new Territorial centre has been opened at Almwickhill close to the wartime radar station which they make use of. Closeness to Edinburgh was influential in the choice of Craigiehall as the headquarters of Scottish Command and Gogarmount as a Command Centre. Turnhouse Airport came into being during the wartime emergency for use by the Royal Air Force and Transport Command. After the war, however, being close to the city the airport has been increasingly used for commercial purposes and was recently handed over to civilian control, but the Royal Air Force still has quarters and installations there.

The demand for office space in Edinburgh has been very great, as would be expected in a capital city. As central locations have become increasingly more expensive and in many instances unsatisfactory, some firms have moved out to the urban fringe, where they could either convert large houses to meet their own particular requirements or build specially designed office blocks. Examples of this outward movement

are to be found at Silverknowes where two large houses have been taken over and at Gilmerton where a new building has been located to house the National Coal Board regional headquarters (Fig. 79).

A large number of small neighbourhood parks have been established close to many residential estates within the city and those on the edge of the built-up area form part of the fringe area, as is the case at Magdalene, Newcraighall, Niddrie, Inch, South House, Straiton, Gracemount, Liberton, Colinton, Juniper Green, Davidson's Mains, Lauriston Castle and Granton (Fig. 81).

This also applies to the Royal Park, Blackford Hill, the Braid Hills, Hillend Park, Bonaly Park and Corstorphine Hill which form extensive areas of essentially unaltered hill masses used by people from all over the city.

Playing fields and sports grounds are often included within neighbourhood parks, but several areas are devoted solely for this use. They are seldom located far from the urban area and are used mainly by schools or further education institutions. The sports grounds at Niddrie, Craigmillar, Duddingston, Peffermill, Nether Liberton, Gilmerton, Saughton and Granton fall within this category (Fig. 81).

Very few of Edinburgh's numerous golf courses have been drawn into the built-up area which means that at the present there are four public and eighteen private courses whose memberships are almost exclusively made up of people who live in the city. In addition there are three other courses, Monktonhall, Royal Musselburgh and Broomieknowe, that have found it necessary to limit the proportion of their membership residing in Edinburgh to 40% to prevent local residents from being excluded by an increasing number of city people. However, since these three courses are also closely associated with fringe towns they should be included

within the rural-urban fringe.

The Pentland Hills have become an important recreational area as more and more people make use of the parks on their northern slopes and with the growing popularity of rambling. A more specialised sporting activity is catered for in Hillend Park where Edinburgh Corporation have constructed an artificial ski-slope and ski-lift, thelatter being accessible to both skiers and the general public. The reservoirs in the folds of the Pentland Hills have become popular beauty spots and are also used for fishing. The increasing use made of the hills for recreational purposes necessitates the inclusion within the fringe area of the area north of a line from Balerno by Threipmuir and Glencorse Reservoirs to Bush House.

The yachting clubs at Cramond, Granton and Fisherrow (Fig. 82) provide facilities for those people living in Edinburgh who are interested in weekend or competitive sailing.

Horse riding stables mainly used by people from the city have been established at Blackford Glen, Balerno and Gogar.

As leisure time increases fringe entertainment land-uses such as the Royal Scottish Zoological Park at Corstorphine and the race course at Musselburgh have both become popular for weekend and evening visits. In 1958 the Royal Highland and Agricultural Society of Scotland bought Ingliston golf course and converted it into a permanent site for their annual livestock and farm produce show and machinery exhibition. Writing about this location Col. J.A. Symon noted that "Ingliston possesses all the requirements of an ideal show site. Situated on the best main road in Scotland, it is very near to a main line railway station and Turnhouse airport is less than a mile distant. Ingliston, therefore, could scarcely be better placed for access by car, bus, train or plane, and its proximity to Edinburgh solves the problem of hotel accommodation, while

providing outside interest and entertainment for the visitors to the show.[16] He did not, however, mention the great importance of visits by people living in the city to the financial success of the show. Throughout the rest of the year Ingliston is used for motor car racing, motor cycle racing and carting (Fig. 82).

All around Edinburgh there are hotels and road houses which cater to the demands of the capital (Fig. 82).

In response to the requirements of an increasingly mobile society caravan parks for both holiday visitors and permanent residents have been located close to the city. A park for caravans and camping has been opened by Edinburgh Corporation at Silverknowes and a similar privately owned site is to be found at Little France. At Niven's Knowe and Pentland immediately outside the city boundary there are two residential caravan parks. In total they provide places for 160 caravans and in an interview with the managers of each park it was established that 70% of the residents work in Edinburgh.

The only remaining fringe cemetery is that at Portobello, but the new crematorium and "Garden of Ashes" at Mortonhall is also peripheral to the urban area.

An investigation of the agricultural economy of the area around Edinburgh from the statistics published in the Parish Agricultural Returns illustrated very clearly the way in which improved transport and advanced food processing techniques, and the introduction of national marketing schemes have reduced the advantages formerly held by the local farmer in the production of bulky and perishable produce for the nearby urban market.

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16. Symon, Col. J.A. "The story of Ingliston", Transactions of the Royal Highland and Agricultural Society of Scotland, 6th Series, Vol III, 1958, 1-15, 13.

The distribution of parishes with a concentration on milk cows relative to all cattle in 1946 can be seen on Fig. 83. This would seem to indicate that only the suburban parishes were important milk producers. Ten years later there had been a further decline (Fig. 84) and in 1966 there was no evidence of any local specialisation in milk production.

The proportion of the total cultivated area under potatoes followed a similar pattern of decline. The marked urban concentrations found in 1946 and 1956 are no longer evident with potato cultivation on a large scale being restricted to the parishes of Inveresk and Tranent where growing conditions are ideal (Figs. 83, 84 and 85).

In contrast to this evidence of reduced urban influence, the very lucrative pig keeping industry has continued to expand. Parishes with over 1,000 pigs included all those around the city, and several to the west and south west a distribution which has remained constant throughout the post war period. This reflects the increasing ease with which waste food can be transported to farms within several miles radius of Edinburgh.

The distribution of vegetables grown for human consumption reflects as does that for potatoes the favourable soil and climatic conditions found in Inveresk and Tranent, but the extensively built-over suburban parishes around Edinburgh also have a large proportion of their remaining cultivable land under vegetables (Figs. 83, 84 and 85).

Since it became apparent that market gardening was the agricultural activity most closely linked to the demands of the Edinburgh market a study was made of the gardens around the city in order to determine the areal extent of market orientation towards Edinburgh.

The conclusions of this investigation accorded with those reached by C. Bell[17] in that it would appear that only the small scale market

17. Bell, C. "Some aspects of market gardening in Mid and East Lothian." Unpublished M.A. dissertation, Department of Geography, University of Edinburgh, 1965.

gardens, less than 20 acres, within ten miles of the city depend heavily on the nearby urban market. Those at Longniddry, fifteen miles away, find it uneconomic to carry their produce into Edinburgh every day because of time and vehicle costs. This problem is overcome by these growers making arrangements with larger concerns in the neighbourhood to take all the produce to the one market and this is not necessarily Edinburgh.

The extensive gardens near Musselburgh, Tranent, Gladsmuir and Longniddry regard Edinburgh as a poor centre for bulk vegetable sales and prefer to send their produce to Glasgow and Newcastle.

The smaller growers in the vicinity of the city can supply most of the vegetables required and any deficiency in the market is made up partly by produce carried from the larger growers and partly by lorries coming from growing areas in England.

As can be seen on fig. 87 market orientation towards Edinburgh reaches east to Levenhall, south east to Carberry Tower and south to Eskbank. However, it must be emphasised that some of the larger gardens within this area are only partly dependent on the city market. In the valley of the River North Esk west of Dalkeith there are several small producers all of whom depend heavily on Edinburgh as an outlet for their produce, apart from a flower farm which deals direct with London. West of the city the market gardens at Colinton, Dalmahoy and Kirkliston also fall within the city's market area (Fig. 87).

The groups of small holdings at Loanhead, Wester Hailes and Turnhouse also have strong links with Edinburgh as a market for their produce (Fig. 86).

The demand by people living in the city for household plants, flowers and seeds is in part met by the small nursery gardens located on the periphery of the urban area at Cameron Toll, Juniper Green, Wester Hailes,

Corstorphine, Turnhouse and Cramond (Fig. 86). The larger nursery belonging to Dobbie & Co. at Eskbank serves a similar purpose in addition to sending its produce all over Britain, and it should also be included within the city's rural-urban fringe.

The number of allotment gardens in Edinburgh has gradually decreased since the last war and of those still in use only those at Craigmillar and Blackford Hill form part of the fringe area (Fig. 86).

In order to establish with greater precision the influence that the built-up area has on the adjacent farms a survey* was undertaken. This confirmed the conclusions arrived at on the basis of the Parish Agricultural Returns since it established the fact that Edinburgh has very little effect on the economies of the farms in the surrounding districts. Several farmers did say that they sent potatoes and turnips into the city, but they were quick to add that these crops could easily be sent to much more distant markets. Proximity to Edinburgh was regarded as an advantage by the six farmers with dairy herds since it allowed them to market their own produce if they wanted to, but most farmers sent their milk to the large retail dairies in the city. Pig keeping is an activity found on many of the farms due to the ease with which swill can be obtained.

The city does, however, make its presence felt in ways other than as a market for the crops and produce of the adjacent farms. The outward spread of the urban area has taken land from many farms forcing them to modify their crop rotation. On two farms at Gilmerton and Colinton, where the loss of land has been great, crop growing has been abandoned in favour of dairy farming. One farm at Barnton, Southfield, has lost so

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* A copy of the questionnaire used is included as Appendix V

much of its land that it has been incorporated as part of another farm. The peculiar layout of the remaining fields also makes farming operations more expensive.

Proximity to the built-up area has other detrimental effects, in the form of damage to crops and property and disruption of farm activities. Crops are damaged and stolen, animals are worried by dogs and children, fences and ditches are broken down and rubbish is dumped in the fields. These factors have forced those farmers next to the housing estates at Niddrie, Craigmillar, Ferniside, Sighthill and Lauriston to change crop rotations in an attempt to minimise disruption and this normally takes the form of putting those fields that lie adjacent to housing areas down to permanent pasture.

Part of the function of the Green Belt was to act as a safeguard for the agricultural area around the urban area, but almost every farmer interviewed commented that in his opinion the policy was not very successful There was no feeling of security since too many changes had been made in the Green Belt boundaries as and when urban demands for building land had become pressing. However, despite this element of uncertainty and even faced with imminent dispossession as in the case at Backside Lea, Liberton, all of the farmers were adament that the economy of the farm should not be allowed to run down, although buildings were not repaired as often as they would be under normal circumstances. Only the owner of Broomhills Farm, Kaimes, adjacent to the built-up area expressed frustration at not being free to sell his land for house building because of Green Belt restrictions.

In 1963 P. Varma[18] in a study of forty-five farms around Edinburgh

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18. Varma, P. "Competition for land between city and farm with special reference to Edinburgh." Thesis presented for a Diploma in Geography, Department of Geography, University of Edinburgh, 1963.

found that only the occupants of five farms and two small holdings wanted to sell their land, either because of its uneconomic size or closeness to the city. Maps 12(A) and 12(B) of this thesis have been reproduced as fig. 88 since they illustrate the economy of each farm and confirm the conclusion that there is little specialised production for the Edinburgh market, apart from that found in those market gardens and small holdings located within six miles of the city.

Possibly the most striking feature of the rural-urban fringe of Edinburgh in 1967 is the almost total absence of ribbon development and fringe housing estates adjacent to the urban area. This has been largely brought about by the introduction of planned urban growth after the passing of the Town and Country Planning Act in 1947. Under this Act careful consideration was given to the uses to which every piece of land was to be put and this meant that many of the forms of city sprawl that had come into being during the inter-war years ceased to be acceptable. The star shaped urban area underwent a process of rounding off as new residential developments were located in the wedges of open land that had formerly occupied the area between the extensive tentacles of urban growth. Single rows of houses were also felt to be undesirable and wasteful of land and amenity. Consequently at the present time the only examples of fringe residential areas adjacent to Edinburgh are several short ribbons of houses that have survived from the pre-war era, two housing estates isolated from the rest of the city by two large golf courses, and four long established villages which now lie on the edge of the built-up area, but have not yet lost their individual identity.

The main reason for this lack of fringe residential development close to the city was the creation of a Green Belt around Edinburgh in 1956. This area was specifically established to restrict urban sprawl

since only recreation facilities and institutions in extensive grounds could be located within it; house building, other than that for the farms within the Belt, was prohibited. As a result of this policy of restriction the urban fringe has assumed a new form since an extensive zone of open space now surrounds the compact built-up area.

Another striking features are the four large intrusions of fringe land-uses into the urban area. These have as their foci the hill masses of Arthur's Seat, Braid Hills-Blackford Hill, and Corstorphine Hill and the recreation areas on the foreshore of the Firth of Forth at Cramond. Each of these extensive open spaces is made up of parks, sports grounds, golf courses and institutions in large grounds.

Around the edge of the built-up area there is a broad semi-urbanized belt. This consists mainly of parks and recreation areas, with numerous hospitals, rest homes, educational establishments and research institutions Towards the outer edge of the Green Belt there is a fall in the number of fringe land-uses with only a few golf courses and other specialised sporting facilities, research establishments and several mansion house hotels which cater to the holiday trade of the nearby city to be found. A new feature of the urban fringe in recent years has been the movement of offices out from the city centre to peripheral mansion houses or specially erected buildings.

The small market gardens and smallholdings within the Green Belt would appear to be the only agricultural producers in the area around Edinburgh that are to any significant degree dependent on the nearby urban market. The surrounding farms, apart from those immediately adjacent to the built-up area where damage and disruption are at their greatest, are little influenced by the proximity of the city. One aspect of farming which does show signs of a marked concentration around

Edinburgh is pig keeping, since large amounts of swill are available from city restaurants and institutions.

Industry is not one of the major fringe land-uses at the present time. Since 1947 the policy of concentrating industrial premises together has resulted in the creation of a large industrial estate on the periphery of the built-up area at Sighthill. However, this area of new factories is not as large as it might have been had Edinburgh and Leith been designated a Development Area since within these areas the Government provides incentives to attract new industries. This is one of the disadvantages of Edinburgh since the surrounding counties all hold Development Area status and have consequently been able to attract many of the new factories moving into the Lothians area and they have also drawn several expanding firms out from the city.[19] On the other hand in some cases this outward movement of industries to the surrounding towns has strengthened their links between these settlements and Edinburgh as the short distance of this re-location has enabled many people to continue to live in the city. Other fringe industrial premises are remnants of the earlier period, several road-side factories and others located around two railway yards. The railway continues to be an important fringe land-use since the new marshalling yard for the city has been established at Millerhill.

Even before the creation of the Green Belt the general shortage of jobs in the area around Edinburgh had resulted in a considerable number of people living in the adjacent towns and villages commuting into the city to work. This movement has grown with the recent cut back in the

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19. Sir J. Hunt (Chairman) "The intermediate Areas: A report of a committee under the chairmanship of Sir Joseph Hunt." London, H.M.S.O., 1969, 75-77.

number of people employed by the National Coal Board. The tight limitation imposed on urban expansion by the location of the inner boundary of the Green Belt very close to the existing built-up area has also been of great significance. A few years after the Green Belt was established there was a growing shortage of private house building land in Edinburgh and since it was almost impossible for private building contractors to bring about a change in the boundaries of this area, new housing estates had to be located beyond the Green Belt. The county planning departments guided these estates into the existing towns and villages and in this way strengthened their already considerable links with Edinburgh. On the basis of the level of employment ties between the city and the adjacent towns and villages it was found that nineteen of these communities fell within the rural-urban fringe. Five of these are within the Green Belt and consequently are not allowed to expand industrially or residentially. The remainder are located beyond this controlled area. Of those settlements close to the city only those with long established thriving local industries or recently located industrial estates displayed an employment independence from Edinburgh that excluded them from the fringe area. Many of the industries in these estates have moved out from Edinburgh[20] and only at Newbridge and Ratho Station where there were insufficient houses built for the new workers, had this influx of jobs not resulted in the exclusion of the settlement from the fringe.

Consequently the rural-urban fringe of Edinburgh in 1967 consists of a zone of intensive semi-urbanization around and projecting into a very compact urban area. This decreases outwards into the Green Belt

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20. Ibid., 19.

within and around which there are numerous satellite settlements up to twelve miles away, which now form part of the city's commuter fringe. Agriculture is little influenced by Edinburgh apart from the market gardens and smallholdings within the Green Belt and numerous pig farms.

CONCLUSION I

The rural-urban fringe of Edinburgh, 1850-1967

This investigation of Edinburgh's rural-urban fringe has illustrated and accounted for many of the variations in form, function and development of urban expansion over the past one hundred and seventeen years. It has also established the areal extent of the spread of urban-orientated land uses and the zone within which farms have concentrated on production for the nearby urban market.

The period studied falls into three quite distinct phases during which the social and economic influences on city growth produced quite different patterns of urban expansion.

During the nineteenth century urban society tended to prefer to live close together in certain districts of a city to which they had become strongly attached and consequently there was no great desire to move out into quite remote suburban areas, especially as transport media were poorly developed at that time. This meant that the built-up area formed a very compact unit with residential expansion mainly taking place adjacent to existing housing districts or close to places of work. Only towards the end of the century did a fringe of dormitory settlements come to play an important part in the urban residential pattern. However, in contrast to this restricted zone of city sprawl there was a very extensive area of urban-orientated agricultural activity.

This pattern began to break down around 1900 due to changing social attitudes and improving public transport, but it was not until the inter-war years that the effects of these changes reached their fullest development. This period was characterised by the extensive outward spread of housing areas along the main roads with institutions, recreation areas and agriculture occupying the wedges of open land between the tentacles of urban expansion. In contrast, however, the increased use made of road transport and improving food processing techniques greatly reduced the need for localised agricultural production, with the result that this zone began to contract.

The introduction of planning legislation in 1947 marked the start of the third phase of urban development. This represented a reaction against uncontrolled city growth. The extensive wedges of undeveloped land were infilled with houses and a further restriction on city expansion was brought about by the creation of a Green Belt. This policy of containment has in many cases been too strict and has led to the emergence of a series of satellite communities beyond the outer boundary of the Green Belt as people working in the city have been forced to move out to these quite distant towns and villages to find suitable houses. The expansion of the commuter and recreational fringe area contrasts very markedly with the almost total absence of any agricultural specialisation for the nearby city market, apart from the adjacent market gardens and small holdings.

In 1850 the City of Edinburgh comprised a very compact built-up area with only a very small amount of fringe housing development. This in part reflects the unwillingness of even the most wealthy citizens to move out from the well established residential districts and social areas of the city into suburban houses. Another limitation, as was the case

at Warrender, was that many land owners were not prepared to sell property for urban expansion. House-builders were also very reticent about speculating in areas outside the city, since poor transport media dissuaded most people from living far from the city centre. This meant that expansion normally took the form of a broad frontal advance as was the case south of the Meadows or "Burghmuir", where a scatter of villas and terraced houses was to be found over the lands of Grange and Morningside. Rows of houses had also been built along a few main roads and several very small villages on the periphery of the built-up area formed the only other fringe residential areas.

An investigation of the place of work of the occupants of the large houses around the city emphasised the fact that even the most wealthy citizens preferred to live in the urban area and those who had moved out chose the closest of the mansion houses.

It was only to be expected that industries and working class houses would be located close to one another since work started at a very early hour and made a lengthy journey to work undesirable if not impossible. This meant that in most instances fringe industrial premises were simply those most recently established on the periphery of the urban area. However, factories requiring special locations were often found in more remote situations, as was the case with those established on the banks of the Water of Leith. Smell, dirt or the threat to the health of the citizens were also responsible for the eviction of some firms to fringe locations.

As medical care improved and proved more and more effective, the number of hospitals, sanatoria and asylums multiplied. These were often established in semi-rural surroundings because of the lack of space in the city centre and sometimes due to the desire to take

advantage of the fresh air of the nearby rural districts. Many other institutions such as private schools religious houses and military facilities also formed part of the fringe area for similar reasons.

The long working hours meant that most people had little time for recreation and this was reflected in the fact that parks and recreation facilities were restricted to the common lands of Edinburgh and Leith, the Royal Park at Holyrood and a few very small sports areas.

Since cemeteries were unattractive land-uses they tended to be located at some distance from the urban area as was the case with those established in 1846.

These land-uses clustered close to the city within three quarters of a mile of the inner boundary of the fringe forming the most intensively urbanised part of the rural-urban fringe. However, beyond this lay the burghs of Leith and Portobello, towns that had grown up largely because of their close association with Edinburgh and consequently they had come to form the city's fringe area.

On the other hand the limited ability to transport perishable vegetables and agricultural produce over long distances had resulted in a marked concentration of urban-orientated agricultural activity in the area around Edinburgh. Market gardens and nursery gardens abounded in the area between Edinburgh and Leith and were also found at Liberton and Corstorphine. The irrigation meadows at Craigentinny, to the north east of the city, were also producing large amounts of grass for city dairies. These intensive agricultural activities tended to cluster around the city, but beyond these there was an extensive outer area within which the farmers specialised in the production of milk and potatoes for the nearby urban market.

This gave rise to a rural-urban fringe area which in 1850 comprised

an inner belt of intensively urbanized land within three quarters of a mile of the very compact built-up area, except to the north and east where it included the towns on the shores of the Firth of Forth. However, there was surrounding this an extensive area of urban-orientated agricultural activity which reached out to between five and six miles of the city centre.

There had been very little change in the character of Edinburgh's fringe area by 1875. In response to increasing population the built-up area had expanded, especially to the south and west where it had incorporated a large part of the 1850 fringe residential districts. There had, however, only been a limited amount of new fringe development which emphasised the continued reluctance of speculative builders to risk their money in developing distant housing areas at a time when almost all of the city people still preferred or were forced to live as close as possible to the city centre. Working class residential areas intermingled with industrial premises and only rarely were they found in fringe locations. This meant that only those partially completed upper class residential districts formed part of the fringe area, as did a few short ribbons of houses that stretched out along the main roads.

The small villages on the edge of the built-up area retained their 1850 fringe classification in most instances, but a new feature was the emergence of a commuter fringe as a few wealthy citizens chose to live in the attractive rural villages close to the city. The latter movement had drawn the villages of Liberton, Colinton and Cramond into the rural-urban fringe.

Portobello and Leith had both become increasingly linked with Edinburgh and continued to form part of the urban fringe.

Those mansion houses with occupants who worked in the city had

increased in number and their distribution reflected the outward movement of people to the attractive districts within easy reach of Edinburgh, since there were growing concentrations of Edinburgh-orientated large houses at Duddingston, Liberton, Colinton and Cramond.

The importance of the railway in industrial locations was clearly shown by the fact that several of the peripheral railway yards had come to form the foci of industrial districts. Extra-urban sites were necessary because of the large amounts of land required by the railway facilities. The valley of the Water of Leith between Slateford and Leith continued to form a prominent thread of fringe industrial premises.

The expansion of the urban area had not encompassed the ring of hospitals, asylums and schools which had been established before 1850 and as the demand for more medical and educational facilities grew several new fringe institutional land-uses came into being. However, as was previously noted, they were never located far from the built-up area.

Although there had been no appreciable increase in leisure hours for the community as a whole, professional workers began to enjoy more free time and as a result several new parks and sports grounds had been established. Organised sport also began to play an important part in the curricula of the private schools and this led to the location of several playing fields on the flat land to the north of the city.

The coming of the railway had little effect on the carriage of agricultural produce and there was still an extensive area of urban orientated market gardening, nursery gardening, milk production and potato cultivation, extending over a zone some six miles in radius from the city centre. Within this area, however, especially to the north of Edinburgh, there were numerous market gardens and at Craigentinny the sewage meadows were still in use.

Although the built-up area had grown considerably by 1875 it continued to form a very compact unit. Around it there was an inner fringe zone similar in form, character and area to that found in 1850. It had, however, become much more intensively urbanized. Beyond this a ring of commuter villages, some three to five miles from the city, had come into existence reflecting the gradual increase in the demand for rural homes. Similar motives were also responsible for the increasing number of city-orientated mansion houses around Edinburgh. The outer zone of agricultural orientation was almost exactly the same in areal extent and character as that delimited twenty-five years previously.

During the last quarter of the nineteenth century with the opening of the suburban railway in 1884, and the development of the cable car and tramway systems transport facilities within Edinburgh improved considerably. However, there was no rapid outward spread of the built-up area since these new facilities kept pace with, rather than preceded, urban expansion. This was particularly true in the case of the tramways, but the railway often reached much further afield and in doing so stimulated the growth of those suburban districts through which it passed.

At the turn of the century the built-up area had only two noteworthy fringe ribbon extensions which reflected the continued influence of factors already noted with regard to the earlier periods, especially the apparent unwillingness of house builders to speculate in areas not served by the public transport system. The absence of peripheral urban growth was, however, due in part to the fact that most people who wanted to move out to rural areas preferred to live in the adjacent villages where community services and facilities were already in existence, since the suburban residential districts were not nearly so well served.

This outward movement of people gave rise to a wide ring of suburban

dormitory villages consisting mainly of those located in attractive rural surroundings with good rail or road access into the city, as was the case at Juniper Green, Corstorphine, Davidson's Mains, Blackhall, Barnton, Liberton, Colinton and Cramond.

By 1895 Edinburgh had expanded north and had become continuous with Leith, but the inner boundary of the fringe still ran between them since they were under separate administrative control. Portobello's ties with Edinburgh had become so great that they were administratively united in 1896, but physical separation preserved Portobello's fringe position.

As the number of wealthy families in the city increased the demand for country residences grew and this was clearly shown in the growing proportion of the mansion houses around Edinburgh that were occupied by people who worked in the city. The overall distribution of these houses was much more widespread than had previously been the case, but there was still an observable concentration within a radius of five miles from the city centre, with concentrations in the more attractive districts.

Since most new factories were located in the established industrial areas this meant that only those premises on the periphery of those railway yards situated on the edge of the built-up area can be included within the fringe. The industries along the Water of Leith upstream to Juniper Green also continued as part of the rural-urban fringe.

The desire to be located in semi-rural surroundings resulted in an increasing number of medical facilities forming part of the fringe as did many other institutions, especially those situated in large grounds. This had been the case around Edinburgh for many years, but a striking feature of the fringe in 1895 was the gathering of institutions into groups as had happened at Inverleith, Dean and Morningside. Some groups were

made up of similar types of institutions due possibly to the advantages of association, but others seem to have resulted simply from the availability of suitable areas of land in a particular district. In addition to these clusters there was a scatter of hospitals, schools and other institutions all around the urban area.

As the number of schools in the city grew the amount of land devoted to playing fields increased considerably. The City Council were quick to recognise the benefits that accrue from large open space parks since they acquired two hill areas and a large estate which opened as parks during this period. More and more people began to play golf and as demand grew too great for the older courses new facilities were established around the city, but due to the difficulties of acquiring suitable land for this purpose, these courses were often a considerable distance from the city centre.

The agricultural economy of the surrounding area remained much the same as it had been throughout the previous fifty years with a zone of intensively cultivated market gardens, nursery gardens and irrigation meadows close to the urban area and beyond this there was an extensive belt of farms which depended heavily on the city as a market for their produce.

At the end of the nineteenth century the compactness of Edinburgh's built-up area was more marked than in either 1875 or 1850. However, the absence of residential suburbs was counterbalanced by a ring of commuter villages, situated within five miles radius of the city centre. In the area between the dormitory villages and the built-up area there was an intimate mixture of urban land-uses which increased in intensity towards the city. The character of the fringe had changed slightly since 1875 with recreational and institutional land-uses becoming more

important. On the other hand the agricultural fringe area remained almost exactly the same as it had been twenty years earlier.

The cessation of all house building at the outbreak of the First World War accounts for the limited increase in the built-up area between 1895 and 1918.

However the growing demand for rural residences which resulted from changing social attitudes, increasing population and greater affluence, coming at a time when rail and tram transport were well established led to the appearance of several ribbon housing developments reaching out from the urban area towards the surrounding towns and villages. The neighbouring villages had also grown considerably in response to the same factors, emphasising the fringe character already in evidence during the previous period.

By 1918 Leith had become continuous with Edinburgh along a very considerable portion of their common boundary, but as they were still administratively separate Leith must still be included within the city's fringe area. Portobello, Edinburgh's residential and resort suburb on the shores of the Firth of Forth, also retained its fringe classification.

It was only to be expected that a large number of the mansion houses around Edinburgh would be drawn into the fringe area since they were influenced by similar factors to those which had resulted in the expansion of the surrounding villages.

The Water of Leith and a few peripheral railway termini continued to form important industrial concentrations, as did the new city slaughterhouse at Slateford and the city gas works at Granton, both located outside the urban area because of the lack of suitable space and their undesirable character.

Over the entire area between the dormitory villages and the city proper there was a zone of mixed recreational and institutional land-uses.

The groupings of institutions continued to characterise the fringe of the city at Inverleith, Dean, Morningside, Craiglockhart and Liberton, but there were a growing number of isolated institutions located around the city. Several new parks had been established adjacent to those residential areas which had previously not been provided with any open space recreational facilities. These, along with the older parks and playingfields came to form an increasingly important component of the land-uses found on the urban periphery. Golf courses had also multiplied in response to growing demand as the popularity of the sport grew. By 1918 there were eighteen courses around the city, distributed over a far wider area than the other recreational areas. The war-time emergency had resulted in the expansion of War Department property near to Edinburgh, with the location of new barracks and training areas on the foothills of the Pentlands.

The city-orientated agricultural area remained similar to that delimited in 1896 although there was evidence that the war-time need to grow as much food at home as possible had reversed a slight decline in the importance of localized agricultural production.

The rural-urban fringe in 1918 continued to display the same two belts previously distinguished. However, the inner zone of marked urbanization was considerably more extensive and reached as far as the ring of neighbouring dormitory villages whereas the outer area of agricultural production for the city market has remained unchanged, extending over the area within six miles of the centre of Edinburgh.

After the First World War increasing affluence, longer leisure hours and a revolution in social standards, coming at a time when both public and private transport were improving, had a dramatic influence on the form of urban expansion. As more and more people wanted to live in detached or semi-detached houses with gardens in semi-rural surroundings,

the absence of strict planning legislation resulted in the construction of houses out along the main roads into the city and in the expansion of the suburban communities that had grown up around the adjacent villages. It was only to be expected that the major thorough-fares which provided the easiest access into the city would emerge as lines of ribbon development, but in addition houses were also built along many of the secondary and minor roads adjacent to the urban area and suburban communities forming a feathered or network pattern of fringe residential expansion.

The need to provide rented houses for working class families living in sub-standard central city residential districts had led to the development of large local authority housing estates at Niddrie, Craigmillar and Sighthill. These formed extensive blocks of houses in fringe locations, as did those at Colinton Mains, Sighthill and Carrick Knowe where private building contractors had constructed flatted houses for middle class families.

The extensive expansion of the built-up area during this period had drawn almost all of the earlier fringe industrial premises into the city and this meant that only those factories around three peripheral railway yards and on the upper reaches of the Water of Leith formed part of the fringe area. However, as road transport improved for both people and goods, roadside locations on the outskirts of the urban area were chosen by a few new light industries.

A striking feature of Edinburgh's fringe area was the role played by the hilly terrain in guiding the direction of urban expansion. The largest hill mass was the Royal Park, flanked by Duddingston village, two golf courses, two playingfields and several nursery gardens. This green wedge penetrated into the heart of the city and separated the

housing estates and industry at Craigmillar from the built-up area. The Braid Hills and Blackford Hill formed another upland area between Liberton and Fairmilehead which consisted of parks, golf courses, along with the University of Edinburgh science campus. Between Morningside and Craiglockhart another hill area had come to form an important institutional district. Corstorphine Hill formed a fourth upland mass on which the Royal Scottish Zoological Park, three golf courses and the Ravelston estate had been established. The flat land between Edinburgh and Leith, where several playingfields, market gardens and institutions were located formed the fifth extensive fringe recreational area. Each of these wedges played an important part in the formation of Edinburgh's star shaped urban area.

In the area beyond the city there was a scatter of other fringe land-uses such as the institutions at Liberton, the parks and military facilities on the flanks of the Pentlands, the numerous golf courses that had been established around the city, and several new hospitals and research facilities.

In contrast to this expansion the zone specializing in agricultural production for the city market had been considerably reduced as transport media improved, as canning and freezing were developed and as national marketing schemes were introduced.

The extent and form of Edinburgh's fringe had changed radically since 1918 due to the rapid outward growth of the built-up area and its associated land-uses which had come to form an intensively semi-urbanized area that reached out beyond the surrounding suburban residential communities. This spread is in marked contrast to the reduced area specialising in agricultural production for the nearby urban market. This has meant that to the west of Edinburgh the spread of urban land-uses

reached some seven miles from the city centre and extended further afield in this district than the urban-orientated agricultural area for the first time during the period being studied in this thesis.

The introduction of strictly enforced planning legislation after 1947 brought this period of uncontrolled ribbon development to an end and introduced the concept of rationalised urban growth by taking into account the best use that could be made of the land available. The infilling of the pre-war star pattern was one of the first steps taken, with the result that there has been a return to the nineteenth century pattern of a compact urban area out from which there are only three or four examples of fringe ribbon development. This is the case, despite the great demand for rural residences, increased affluence, longer leisure hours and vastly improved personal mobility. Apart from these short ribbons the only other fringe housing areas within the city's administrative area are two private estates separated from the built-up area by extensive recreational areas and four old villages that have not yet been surrounded by urban expansion.

The designation of a Green Belt around the city placed a very tight limit on its growth and as the remaining building land in Edinburgh was developed many private house contractors were forced to look for sites beyond the Green Belt in order to meet the continued demand for houses. Most of these new residential estates have been guided by the county planning authorities into existing communities and this has meant that the towns and villages around the outer edge of the Green Belt have become increasingly employment-orientated towards Edinburgh.

This form of development has given rise to a new fringe pattern around the city since the element of continuity with the built-up area can no longer be regarded as an essential characteristic of the area.

The shortage of jobs in the surrounding districts had already resulted in a considerable number of people commuting into the city from the neighbouring towns and villages. This element has increased considerably with the recent decline in the coal mining industry and the construction of houses in many of the surrounding settlements for people unable to find suitable houses in the city. The pattern that has emerged is in fact similar to that discerned towards the end of the nineteenth century when the villages close to Edinburgh began to adopt dormitory characteristics. However, at the present time the distance of these communities from the city is between six and twelve miles, which is far greater than that found during the earlier phase of urban expansion. An investigation of these towns and villages established that they do not display the same level of employment and service dependence on Edinburgh as do dormitory suburbs, but using job-orientation as the main criterion for inclusion within the fringe, nineteen settlements around the city have come to form part of the rural-urban fringe. The exceptions among these towns close to Edinburgh result mainly from the presence in them of long established or recently introduced industries that have counter-balanced the need to travel into the city to work. Although access to Fife has been greatly improved since the Forth Road Bridge was opened in 1964, there is still not sufficient evidence to support the inclusion of any of the towns in south Fife within Edinburgh's rural-urban fringe.

There are a few remnants of the pre-war industrial pattern which still retain their fringe locations, but the industrial estate at Sighthill, established after the last war, is by far the largest fringe industrial concentration. The fact that this estate conforms to modern industrial standards, with large lots, ample space for plant expansion, landscaped surroundings and good road access meant that its large size necessitated

a site on the periphery of the built-up area.

Four extensive areas of open land, three of which are hill masses and the fourth the foreshore of the Forth to the north west of the city, form deep wedges of fringe land-uses, mainly parks, playingfields and institutions, which penetrate far into the very compact urban area.

Parks fall into two quite distinct categories, those located very close to residential areas which are landscaped and act as neighbourhood facilities and much larger parks, often hill or former estate areas that serve not only the adjacent housing districts, but also attract people from all over the city. Playing fields and sports grounds are in general located close to the urban area sometimes as parts of parks, but in a few instances they are for sport alone. The large number of golf clubs whose members come mainly from Edinburgh are distributed over a wide area around the city.

The Green Belt was specifically established to preserve an extensive open area around the built-up area that could not be encroached upon by houses, but which could be used for recreational facilities and institutions located in large grounds.

Medical, educational and research institutions tend to cluster around the city, but a few are situated towards the periphery or beyond the Green Belt area. A new feature of the fringe are offices which have moved out from the city into new buildings or converted mansion houses located close to the urban area. Large houses have also proved ideally suited for use as hotels.

As leisure time has increased specialised recreational facilities such as horse riding, yachting and skiing on artificial slopes in addition to numerous entertainment land-uses like the race course, motor race circuit and the zoological park have become very popular, and are

found all around the city within easy reach of the urban population.

At the present time there is little evidence of city-orientated farm production due mainly to the fact that in this era of advanced storage, processing and transportation technology the local farmer is no longer in an advantageous position. Only those farms immediately adjacent to the built-up area were greatly influenced by the city, and this mainly takes the form of changes in crop rotation brought about by damage and disruption. However, market gardens do show considerable dependence on the nearby urban market, but the limited size of this outlet, in the case of Edinburgh, has meant that it can be easily supplied by those market gardens within a radius of six miles of the city centre. The availability of waste food within Edinburgh has resulted in an important pig keeping concentration in the surrounding districts.

Consequently it was discovered that the rural-urban fringe of Edinburgh in 1967 is not entirely the result of normal urban growth, but shows quite distinctly the influence of planning legislation. The compactness of the urban area is quite remarkable and reflects the effectiveness of these controlling policies. The designation of a Green Belt close to the existing built-up area, and the imposition of very strict controls within this area have given rise to a zone of open land area made up of farms, parks, recreation entertainment facilities, institutions and several long-established settlements, around the city. The presence of the Green Belt has led to a considerable amount of housing development that would otherwise have been located close to the urban area, being carried out to the neighbouring towns and villages. This influx of new residents, along with the increasing number of people who have lived in these communities for many yeears and who now work in the city, has drawn many quite distant towns and villages into Edinburgh's fringe area.

This outward spread of the city's residential dominance, to between ten and twelve miles from the city centre, has for the first time in the period since 1850 completely encompassed the zone of agricultural dependence on the nearby urban market.

This study has traced the development of the rural-urban fringe around Edinburgh since 1850, emphasising the different form, function and evolution of this zone during periods of markedly differing social and economic conditions. Although the same land-uses are to be found in the fringe area throughout the entire period investigated their importance and distribution has varied considerably. There has been a continual increase in the number of land-uses originating in, or established to serve, the adjacent built-up area and the outward spread of these land-uses has grown in response to changing social standards and improving transport media. On the other hand the urban-orientation of agriculture economy of the district around the city has declined as the problems of storage, carriage and marketing of bulk produce have been overcome.

This detailed appraisal of the rural-urban fringe around Edinburgh will in the following chapter be contrasted in general terms with the character and patterns of fringe areas found around cities in North America. In this way the differences that result from the long history of urban development and the planning controls now influencing urban development in Britain can be compared with the essentially unhindered urban expansion characteristic of North America, where fringe areas have received a great deal of attention in both geographic and sociological literature.

CONCLUSION II

A comparison of fringe areas in the U.K. and the U.S.A. 1900-1967

In this concluding chapter a comparison will be made of the variety of factors which have ~~and still are~~ influenced the development of the rural-urban fringe areas around cities in the U.K. and U.S.A. The latter was chosen for this purpose because researchers there have been very active in the study of the pattern and consequences of urban expansion. Many of the ideas and theories which have their origin in North America have been adopted without modification by other workers and applied to cities in different parts of the world. However the author feels that the unquestioned acceptance of theories formulated in the U.S.A. context may not be justified. By means of a point by point analysis of the concepts and motivating forces behind the development of fringe areas in the U.S.A., and the U.K. during the same period, it is felt that a clearer appreciation will be gained of the similarities and differences between rural-urban fringe areas in these two countries.

The urban fringe has never been satisfactorily defined; the simple fact that it is known to exist would appear to have been sufficient for many students who have then proceeded to analyse the content and character of an area they have not clearly delimited. Malone Young refers to it as the transition land between a city and its surrounding

rural region[1] and G S. Wehrwein classes it as "the area of transition between well recognised urban land uses and the area devoted to agriculture"[2] R. Murphy feels that it would be hard to take serious exception to the latter definition, but wonders how it could be applied in the field.[3] These definitions are very similar in that they indicate where the fringe is to be found, but they are of little help in identifying the areal extent of the zone under consideration. The research carried out on Edinburgh for this thesis has made it possible to formulate a definition which outlines the character of the fringe area in the U.K.

The rural-urban fringe is that zone beyond the compact urbanized area into which urban land-uses and land-uses serving the city have spread and within which agricultural activities are influenced by the proximity of the urban area or dependent on the city market; continuity of these land-uses either with the built-up area or with other fringe land uses is an essential characteristic of this area (except at the present time when cities surrounded by a Green Belt are being considered). In these cases continuity of settlements and land-uses beyond the outer boundary of this area is essential.

The fringe area ceases to exist when this contiguous outward spread of urban-orientated land uses can no longer be identified or when large scale commuting from surrounding communities, at least one third of the settlement's labour force working in the city, is no longer found.

The problem of how to draw boundaries around the rural-urban fringe

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1. Young, M. "Some geographical features of the urban fringe", The Southeastern Geographer, Vol. 2, 1962, 1-7, 1.
2. Wehrwein, G.S. "The rural-urban fringe", Economic Geography, XVIII, July, 1942, 217-228, 217
3. Murphy, R. "The American City", McGraw Hill, New York, 1966, 43.

has been recognised by many researchers in the U.S.A. Some have attempted to define these limits rigorously, a few simply allude to the fringe as an obvious feature of urban growth, while others merely describe its characteristics without making reference to where it begins and ends.

With regard to the inner boundary of the fringe Blizzard and Anderson[4] felt that it could be delimited on the basis of the completeness of city services. This will usually accord with the corporate boundary of the central city, but may in some cases be less extensive or extend beyond the administrative area. Since a similar definition can not be formulated for cities in the U.K. a series of premises for delimiting this boundary based largely on the outward expansion of residential areas, has been set out in Appendix I.

In contrast to the inner boundary which can be defined as a finite line clearly recognisable on the ground, the outer boundary is far less easily delimited since the rural-urban fringe gradually merges outwards into the surrounding agricultural area. Blizzard and Anderson do not point to any suitable answer to this problem for they talk vaguely of commercial farming and vacant land as good fringe land-use indicators. They say that in their own study the outer boundary of the fringe was placed at the approximate point where an urban pattern of living of some concentration gave way to a pattern of widely scattered acreage lots with non-farm type houses among farms, or to "pure" farming or forest use.[5] However, this is very vague and of little definitive value. Murphy[6] suggests the use of land value profiles looking for the areas in which farms are valued

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4. Blizzard, S.W. & Anderson, W.F.II,"Problems in rural-urban fringe research - conceptualization and delimitation." Progress Report No. 89, The Pennsylvania State College Agricultural Experimental Station, State College, Pennsylvania, 1952, 11.
5. Ibid., 12
6. Murphy, op. cit., 45

on their agriculture alone and are therefore uninfluenced by the neighbouring city. Myers and Beegle[7] in their study of Detroit worked out a method based solely on the proportion of non-village rural non-farm population in each of the square mile townships around the city. The rural-urban fringe was then defined as consisting of those townships having over 50 per cent of their population in this category, provided that they were contiguous with the city, whereas those with 25 to 50 per cent were designated "partial fringe" areas. This method has the advantage that it can be applied readily and quickly if the information is available. However, special counts have to be made for townships and if the size of the township varies this method is less reliable.

In the British context all of these methods, apart possibly from that concerning land values, are inapplicable since farm disruption, the shape of the fringe area, the political divisions and the available census information take very different forms. In the absence of an alternative method devised specifically for cities in the U.K. the hypothesis has been formulated* that a city's fringe area includes those adjacent towns and villages which have at least one third of their labour force working in the city along with the land between them and the built-up area. Possible extensions to this area may have to be made to include any other land-uses that are very strongly linked to the nearby city.

In the U.S.A. the character of the fringe area as it developed during the period prior to the Second World War was quite different from that found in the U.K. It formed a much more easily recognisable feature than its British equivalent and because of this it is difficult to understand

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7. Myers, R.R. & Beegle, J.A. "Delimitation and analysis of the rural-urban fringe." Applied Anthropology, Vol 6, No. 2., 1947, 14-22

* A full account of this delimitation is included in Appendix III.

why a clearer definition of this area was not formulated. The following list of characteristics of the fringe were drawn up by W. Firey in 1946:

"1. A capriciousness and diseconomy of private development plans
2. Variability and instability in the spatial problems of land use
3. A tendency for residences to gravitate to the lowest in terms of class status.
4. An irrelevance of settlement patterns to soil capabilities.
5. Removal of land from agricultural productivity with no complete conversion."[8]

As a refinement of these broad characteristics Wissink[9] feels that a rough delimitation can be made between an inner and an outer fringe zone. In the inner area, there are such features as industrial districts, regional shopping centres, trailer parks, junk yards, roadside commercial development, scattered housing, golf courses and institutions, whereas the outer area is one in which there are gentleman farmers and large estates, numerous part-time farms, rural villages in the process of conversion, a scatter of houses and shack towns in addition to many of the land-uses found in the inner zone.

In the U.K., although many of the features mentioned above were to be found the problem of the misuse of land implied by both Firey and Wissink was not found to the same degree. Since land in Britain is not plentiful it has always been regarded as a valuable asset and consequently it has not been as wastefully exploited as has been the case in North America. The outward expansion of British cities along the main roads

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8. Firey, W. "Ecological considerations in planning for the rurban fringe" American Sociological Review, XI (1946), 411-421.
9. Wissink, G.A. "American cities in perspective", Assen, Netherlands, 1963, 200-230.

during the 1930's disrupted agriculture, but did not take large areas out of cultivation without fully developing them for other purposes. Cities in the U.K. appear to have escaped the worst effects of the inter-war expansion. Because of the dense settlement pattern in Britain cities have been able to expand into neighbouring villages and towns which have continued to display a community spirit and identity of their own. This has not happened to the same extent in America where very large, partially occupied, suburban developments came into being. At the present time cities in the U.S.A. have realised the problems of uncontrolled growth, but as yet effective planning legislation has not been formulated to allow them to impose the strict laws now enforced in Great Britain. As a result the American fringe is still characterised to a large extent by discontinuity of development and the juxtaposition of a great variety of land uses.

The type of fringe development found in the U.S.A. is partly brought about by the belief of every American in the rights of the individual and his antipathy to any attempt to interfere with personal freedom of choice. This attitude, when combined with the mobility provided by the automobile, resulted in the rapid outward expansion of urban areas. This was especially true of the inter-war years when, taking advantage of every American's ambition to own a home of his own, real estate agents wastefully sub-divided large areas around cities of all sizes, laying out house lots far in excess of the number that would be required in the foreseeable future. The subsequent introduction of zoning regulations has been effective in eliminating many of the worst features of urban sprawl, but the very strong feeling that the individual should be free to develop the land as he pleases, and the fact that land is in general plentiful, has meant that the rural-urban fringe continues to form a very extensive and sporadically urbanized zone around most cities.

In Britain, no doubt due in part to the fact that from an early time land was not freely available to all of the people and also because the amount of land in the U.K. was very small when compared with that available in the U.S.A, planning control was not opposed with the same vigour as has been the case in America. Since legislation was introduced before the greater part of British society had achieved great personal mobility the worst effect of unrestricted urban growth, the initial stages of which appeared as ribbon developments during the inter-war years, were never able to manifest themselves on a large scale. On the contrary, a series of reports were submitted during the 1930's and early 1940's, which highlighted the problems of urban sprawl. The London Green Belt of the 1930's was one of the first attempts to control excessive city growth, but this was not sufficient and in response to rising public feeling the Town and Country Planning Act was passed in 1947 and this along with subsequent Acts, have imposed very strict controls on the development of cities.

Changes in the social attitudes after 1918, coming at a time when car ownership was increasing, enabled many people to take advantage of their desire to move out to houses with gardens in rural surroundings. The resultant outward expansion of urban areas in the U.S.A. was very great and often led to over-ambitious schemes that were never fully developed. The extent to which this happened is clearly illustrated by making reference to examples of what happened in many administrative areas. "In the State of New Jersey 60 per cent of the subdivided property in 1938 was vacant and the State Planning Board estimated that it would take fifty to one hundred years to absorb. In 1928 more than one half of the subdivided lots were vacant in Cook County, exclusive of Chicago, and one township had enough vacant subdivided lots to accommodate a population twenty times the current

population. The City of Chicago had a total of 1,227,000 lots in 1928 and only 668,000 of these were used. In Grand Rapids there were 51,000 lots in use while 40,000 were vacant in 1931, Milwaukee had 36 lots per 100 persons in 1927, only about two-thirds of these being used. Within the metropolitan area of Cleveland in 1929, 47 per cent of the subdivided lots were vacant, and in 1931 there were enough vacant lots in Los Angeles to accommodate a population increase of 83 per cent. There was as much area in vacant lots in New York City as the land actually developed for residential use, and the total of underdeveloped property and unopened streets was 25 per cent of the city area. In 1941 the developed area of Chicago was 24.1 per cent of the entire city, while 21.4 per cent was still vacant. A survey of twenty-two cities showed an average of 44.7% of the area was vacant."[10] This unrealistic approach to urban expansion was brought about to a large extent by the fact that in the U.S.A. the subdivider and the housebuilder are in most cases different individuals. As a result the real estate agent does not have such large amounts of capital in the venture as would otherwise be the case. City sprawl was also fostered by the plentiful supply of land in America and the willingness of many farmers adjacent to urban areas to sell land to estate agents at prices they felt were high, but which in fact were quite low in comparison with land values within the built-up area. This encouraged speculation since the subdivider was able to re-coup his financial investment without having to sell all the house lots despite his outlay on the purchase of the land and the services, power and water, which he usually had to provide. In many cases this meant that for a profit to be made only a relatively small proportion of the lots in the development had to be sold and so there was no great need

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10. Gallion, A.B. "The urban pattern", Princeton, Van Nostrand, 1957, 190.

in most instances for the real estate agent to expend much effort in trying to sell plots once this level of sales had been reached. If selling the other lots was beginning to prove difficult there was the temptation to leave them as a potential source of income and consider developing a new subdivision elsewhere; on the other hand, if there was a steady demand for house plots the agent would often try to expand the subdivision by purchasing the adjacent agricultural land. In this way a process of leap-frogging took place with new housing areas being opened up for sale before those closer to the city had been fully developed. This partial occupation gave rise to tax delinquency since the local municipal authority had to pay for the provision of schools, police force, fire protection, refuse collection and lighting to areas that were not paying their full tax contribution. However, in some subdivisions, depending on the legal conditions under which development was allowed, the full cost of providing these public services fell on the estate itself, thereby laying a heavy burden on the few people who had bought lots there.

Another problem was that in some of the early subdivisions there was no control over the type of structure built on the lot and this often resulted in a marked variation in the standard of housing within a small area. Only in well controlled developments was it possible to maintain a consistent standard of house type, services and amenity, but in many instances the tendency was for subdivisions to attract the cheaper type of development[11] and this acted as a further deterrent to improvement and in some cases led to the deterioration of the areas into suburban slums.

In planning a subdivision the real estate agent not only allocated land for houses, but also for industry and commercial enterprises. This

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11. Firey, W., Op. cit., 8.

often added to the problem of underdevelopment in some districts since land sold for industrial or commercial enterprises brought in a higher financial return than did house lots, and consequently the amount of land set aside for these uses was far greater than was necessary and extensive areas were left vacant and deteriorated into wastelands. Only in completed residential subdivisions were shopping areas developed, but over-endowment of land was again often the case. Schools, health centres, entertainment and recreation facilities were often never established despite the provision of land for them, because there were too few people living on the subdivision to support these specialised facilities.

The exception to this sporadic development of the area around American cities was the extensive and continuous ribbons of commercial, industrial, entertainment and catering establishments that stretched out along many of the main roads through and far beyond the residential districts.

By comparison, the inter-war development in the U.K. was a much less extensive feature, although it was promoted by the same factors of social change and improved transport. The main reasons for this were that the car was not as ubiquitous as it had become in the U.S.A. and great personal mobility was limited to the more wealthy people. In addition real estate development in Britain did not simply involve the subdivision of the land, but usually entailed the construction of the house and the subsequent sale to the client. Other important factors were the shortage of land and the great competition between different land-users in the U.K. and these forced land values far above the level found in the U.S.A. Consequently the developer was faced with a far greater financial investment than was his American counterpart and this tempered the scale at which he could afford to work and the extent to which he was able or willing to speculate on an uncertain market. Another difference between the two countries was the

introduction in the U.K., in response to social pressure, of local authority housing estates which counterbalanced any trend there may have been towards the emergence of the suburban slums found in the U.S.A. during this period. During the inter-war years the fringe in Britain took the form of a series of relatively short ribbons of residential development reaching out from the star shaped urban area. These rows of houses were most extensive along the main roads with minor features feathering out on side roads. Although farming was disrupted by these developments this did not reach the level found around cities in America. In addition there were several large housing estates which were physically separated from the built-up area and several adjacent villages formed foci around which fringe residential expansion had taken place on a large scale. These small communities formed excellent suburban growth points since shops, services, schools, churches and other social organisations were already present. This contrasted with the situation found around many American cities where these facilities could only be established at great expense to the city or to the community. In Britain agriculture continued to thrive in the area between these residential developments, despite certain diseconomies that resulted from loss of land. These farms along with numerous recreational and institutional land-uses, formed wedges of open land which penetrated deep into the built-up area. In the case of Edinburgh industrial development was limited to a few remnants of the earlier industrial pattern and several newly established factories located on the main roads where they took advantage of the improved road transport. However, industry did not form a major fringe land-use at that time. The presence of retail and service facilities in the suburban villages and the lower car ownership in Britain meant that road-side motels, garages, eating and entertainment places, junk yards and second hand car lots were seldom found. It must therefore be concluded that although the two countries were influenced by the same

social desires, American society was able, because of its greater affluence and mobility and unlimited land resources, to give expression to this outward movement from cities in a form which was far more extensive and far more wasteful of amenity and land than was the case in Britain.

As American local authorities came to realise the magnitude of the problem which faced them some made a determined effort to bring this uncontrolled expansion to a halt. However, until the widespread introduction of zoning ordinances, first implemented in New York in 1916, there was little they could do to change the situation. Zoning slowly grew in importance and became the main way of controlling the outward growth of urban areas. This policy has been defined as "the regulation by districts, under the police power, of the height, bulk and use of buildings, the use of land and the density of population"[12] Land can be zoned for many uses, such as housing, agriculture, forest, recreation, industry or in some cases for use as an airport. Another form of control could be achieved through the housing, health and sanitation laws of the city. As well as planning restrictions on the use that could be made of the land the local authority could also license the subdivider. Before a licence was given the applicant had to show some knowledge of land sale practices and local legislation pertaining to land, and was often required to employ someone to survey and accurately subdivide the land. Under these controls "the community reserves an equity in the land and vests in the individual the right to own and use land subject to the requirements for the general welfare of the community. Thus the city may require the subdivider to dedicate certain streets for access to the property and it may demand that

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12. Solberg, E.D. "Rural zoning in the United States." Washington D.C., U.S. Department of Agriculture, Agricultural Information Bulletin, No. 59, 1952, 2.

sewer lines be installed. If this facility is not available the city may require larger lots to avoid the possibility of water and soil contamination by effluent from cesspools or septic tanks. The city may require service roads where land abuts a principal traffic way to control the ingress and egresss to property and it may require the installation of specific utilities and roads, walks and curbs, street lighting, electric distribution or require the subdivider to post a bond to cover the cost of such improvements before the final map of the subdivision is approved."[13]

If all of these stipulations had been introduced by every local authority many of the problems of American fringe areas would be effectively counteracted. However, this has not been the case, neighbouring authorities vie with one another for developments and one way of doing this has been to make their area more attractive by relaxing the subdivision regulations. It has also been the case that many authorities do not have a strong enough administrative organisation to implement strict regulations. Loopholes can be found in the laws and the financial outlay on a subdivision can still be recouped without having to sell all of the lots. These factors contributed to the continuance, albeit in a far less extreme form, of the inter-war pattern of urban fringe expansion.

It is of interest to follow the steps which a subdivider in the U.S.A. must follow in developing a piece of unimproved land into parcels for sale. Although these vary from one locality to another the following general description gives an insight into the processes involved as outlined by Gallion.[14]

To begin with the land must be surveyed to ascertain the precise description of its boundaries, then official records have to be consulted

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13. Gallion, op. cit. 257.
14. Gallion, op. cit. 159-160

to define the location of special easements or rights-of-way that must be retained in developing the land. All of the restrictions on the use of the property must be determined before any plans can be drawn up. Schools, parks, playgrounds, other cultural and social facilities and shopping facilities in the surrounding districts should then be located and evaluated with reference to the services that may be provided for the residents of the proposed development. The developer will then employ a planner or engineer to prepare a tentative or preliminary plan showing in detail the proposed layout of the entire property. An estimate is then prepared to show the probable total cost of the completed subdivision and an indication given of the minimum selling price for the lots to cover the cost of the land, the improvements, the overheads for subdivision commissions and profits. The tentative map is then filed with the local agency, planning commission or engineer, and this agency submits it to the various city departments for their comments on the engineering, health, schools, fire and police protection and recreation standards of the development. Once permission has been given by the planning department and the legislative body, the developer proceeds with the preparation of the final engineering map of the land. This map is then filed with the city authorities who check it for conformity with the approved tentative plan. If compliance is apparent, the final map is submitted to the local legislative body and the mayor for final approval, and it is then officially recorded.

As mentioned earlier this procedure forms the basis of the strict regulation of plotting, and is in many ways similar to the procedure followed in the U.K. However, the extent to which it is effective will depend largely on the planning standards enforced by the local authority as well as the ability or willingness of this body to impose strict restrictions on the developers.

It must also be emphasised that despite the fact that an estate is well planned and serviced there is no certainty that all the lots will be bought and built on. However this is most likely to happen on the best planned estates since many people will be attracted to them because of the high standards maintained in these developments. But even on well planned subdivisions, house building does not necessarily follow since land speculation is regarded as a form of investment by many Americans, much more so than is the case in Britain. It is not unusual for a family to buy several lots throughout the city in subdivisions that they feel will be in great demand, the object being to wait a few years until the value of the lot has risen and then sell it at a profit. As a result of this activity and the fact that those people intending to build houses choose their own site within a particular development, houses tend to be scattered throughout the subdivision separated by those lots held as investments and others which have not yet been sold. It may be felt that this could be avoided by a planned sale of lots working outwards from the point nearest the city. However, this would be a restriction on the freedom of choice so valued by most Americans and would therefore be an unacceptable method of land sale.

Over optimism on the part of the real estate agents continues to be a problem, especially in those areas administered by rural councils where the planning machinery is not equipped to assess demand or to hold in check the local feeling that a housing development would increase the tax income of the district. Excessive platting gives rise to the problems already described with regard to the inter-war period, but in a less extreme form. Tax delinquency is still found and is a factor that has to be taken into account by people thinking of moving into estates which have only been partially developed.

As a reaction against this form of urban expansion a new type of subdivision has appeared in the U.S.A. This follows procedures similar to those already outlined, but in this case the real estate agent also builds the houses. This increases the agent's financial investment in the project, but also gives him a far greater measure of control over the type of house thatis to be built since he usually offers the prospective resident a choice of around six different house types that he is willing to construct. However, there is still little attempt to influence the location of the house lot chosen, apart from the increasingly prevalent practice of developing the subdivision in phases. This means that each part will be almost fully developed before the next area is opened; however, this policy is not always too rigidly imposed since the range of choice will be restricted when only a few lots remain in the section and this might deter some prospective buyers.

Another new feature is that developers are now creating neighbourhood units, rather than the old grid-iron pattern of urban expansion formerly adhered to. These new housing estates are modelled on the very high class suburbs of the inter-war period, their design and plan being adapted to meet the needs of lower income groups.

Zoning ordinances, although theoretically designed to solve many of the undesirable features that emerged during the inter-war years, have not been completely successful. They have been very effective when imposed by strong local authorities with vigorous planning departments, where policies have been clearly defined. This degree of foresight and the ability to implement those policies thought to be desirable is not however universal and this has led A. Gallion[15], Lee

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15. Gallion, op. cit.

Taylor[16] and R. Vernon[17] to express doubts on the effectiveness of zoning; the last mentioned researcher notes that "Events of the past few decades, as I read them, are proving that the zoning powers which are usually reserved to the city or to the suburban community are simply not enough to insure the use or re-use of land according to any given land-use pattern on which general agreement has previously been reached. The pressures upon a zoning board applied by a private investor who is ready and eager to move ahead on some plan of re-development are so great as almost to be irresistible".[18] If this is the case then many of the undesirable features of fringe development will continue to be found in the U.S.A.

With almost universal car ownership and in many instances two car families the pattern of retail services in American cities has changed quite markedly. "The increasing difficulties of town-centre shopping have led to the migration of large retail establishments towards the peripheries of the urban areas or into near-by rural areas. This has coincided in time with the revolution in retail trade associated with the growth of the supermarket, which not only is cheap-cost shopping, but which provides a complete range, or very nearly a complete range of retail commodities. The pattern of housewife shopping has correspondingly changed. Instead of, as previously, making purchases of different kinds of domestic commodities at different shops, it is now increasingly the practice to buy for the whole week, or even for longer periods, from the supermarkets. For perishable goods domestic refrigerators now make

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16. Taylor, L. "Urban-rural problems" Dickenson Publishing Co., Belmont, California, 1968, Chapter 4.
17. Vernon, R. "Planning in the metropolitan area", Part III of "City and Suburb" Ed. B. Chinitz, Prentice-Hall, New Jersey, 1964, 97-112.
18. Ibid., 102-103

this practicable. Since purchases in bulk require some form of transport the motor-car has for many years been the usual means of family shopping and the American supermarket is of necessity surrounded by large areas of parking space. In America the building of supermarkets away from the town-centres where access for motor-cars was not possible has meant in many cases an extension to urban sprawl and the taking into commercial use of quite large areas of former agricultural land."[19] It is not unusual for several of these supermarket complexes to be built on the outskirts of cities in America.

In contrast to the apparent ineffectiveness of the American planning legislation the strictness of similar controls imposed in Britain is very marked. In the U.K. a demand for planning grew out of an increasing awareness on the part of the public that the urban expansion of the 1920's and 1930's was resulting in the misuse of land. It was felt that this waste could not be afforded in a couhtry with a limited land area and the Town and Country Planning Act, 1947 formalised government policy towards this increasingly pressing problem. This Act imposed very strict controls on the future use of every piece of property and land in the U.K. Each local authority was asked to prepare what was termed a Development Plan, which entailed carrying out an inventory of the area under its control and making proposals as to the use to which each parcel of land should be put. This plan was then to be submitted to the relevant Government Department[20] where it was studied and when it was considered satisfactory, which often only came as the result of consultations between the Ministry and the Local Authority, the Plan was accepted and could only

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19. Thomas W. "Lessons from America, housing and shopping centres" Journal of the Town Planning Institute, XLVIII, No. 7, July-August, 1962, 198.
20. Ministry of Housing and Local Goverment in England and Scottish Development Department in Scotland.

be altered with the written permission of the Minister responsible. The Development Plan is reviewed every twenty years so that any changes in the local situation that might have become necessary or desirable can be taken into account. However, as it was realised that the ratification of these Plans would take several years the policies incorporated within them were to be implemented as soon as possible after the passing of the Act in 1947. This was intended to forestall any attempt by individuals or local authorities to take advantage of the period before strict control could be imposed by law. As further refinements of the policies advocated under this Act were felt to be necessary, supplementary legislation was passed. The creation of Green Belts has been one of the most influential policies advocated by the Government.* Briefly this involved the designation of a belt of land around a city within which building land uses were strictly controlled and in most cases any intrusion of the built-up area is prohibited. However, recreational, institutional and other land-uses situated in extensive open grounds can be located within the Green Belt. The exact boundaries of this belt are of great importance as factors influencing the expansion of the urban area, since if the inner boundary was located close to the existing built-up area, as was the case in Edinburgh, future expansion of the urban area was severely restricted. This meant that private residential area developers eventually had to overstep this controlled area to find building land. This was due to the fact that it is difficult enough for a City Authority to secure a change in the inner boundary of the Green Belt and almost impossible for a private builder to do so. Within the Development Plan all the permitted house building land was specifically designated,

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* See appendix III for a full account of this policy.

and since that allocated for private houses was not very great, it was quickly acquired by contractors and the demand for houses was such that these areas were rapidly developed. Under the strict controls of planning legislation ribbon development is not considered asdesirable form of city growth and this, in addition to the predominance of large housing estate construction, has led to the boundary between urban and rural areas being clearly defined. This contrasts markedly with the very indeterminate merging of city and country found in the U.S.A. Within the administrative area of most British cities, as was found in Edinburgh, fringe residential features tend to be limited to occasional ribbons of houses that have survived from the inter-war period, isolated housing estates separated from the built-up area by extensive open spaces, and the old village nuclei which have not been surrounded by urban growth.

However, these are not the only fringe housing areas. The imposition of the Green Belt with the resulting limitation of space for expansion not only gave rise to a shortage of houses within cities but also resulted in house prices within the urban area being much higher than those beyond the Belt. Since the demand for houses did not decrease with the completion of the building areas within the city private contractors began to look for possible sites in the surrounding countryside. In most cases the county planning authorities guided these new developments into the existing towns and villages. In addition these same settlements were often chosen by the local authority for their own new housing estates. The fringe area in the U.K. therefore reaches out beyond the Green Belt to a number of isolated communities located amidst open agricultural land beyond the outer boundary of the Green Belt.

The development of retail facilities in Great Britain is quite

dissimilar to that found in America. This is partly due to the fact that in Britain public transport has maintained its role as a major means of access to the city centre stores, from suburbs which are not so distant as those in the U.S.A. Since car ownership in the U.K. is well below that in America personal mobility is not so great and this necessitates the use of public transport and increases the importance of local shops. The fringe retail facilities in Britain consist for the most part of small shopping centres established within outlying Local authority housing estates or of the long established shopping foci in the adjacent villages, although in recent years some large peripheral stores have been established around some cities. Ribbons of commercial development stores, garages, second hand car lots, drive-in theatres, eating places, motels, trailer parks, scrap yards and bill boards which radiate out from most American cities are not found to anything like the same extent in the U.K. due mainly to strict planning restrictions and the fact that commercial ribbons had not come into being during the inter-war years.

The trend towards the establishment of industrial estates is an aspect of urban expansion the two countries have in common. These large expanses of land subdivided into lots suitable for the erection of extensive single storey buildings, provided with the necessary utilities and with good transport access, have been accepted as the best method of segregating industry from residential areas. Many cities in Britain have designated land for this purpose, and because of the large areas ~~extent~~ required for estate building these have had to be located on the outskirts of the built-up area. In the U.S.A. a similar situation exists, but too much land has often been allocated for this use, as tends to be the case wherever the private speculator is concerned. However, in Britain these industrial estates are controlled by the city

authorities or by the Board of Trade and the wastage of land is not as great as might otherwise have been the case.

Pressure on land in the city centre, the problems of access, and high taxes, have forced many offices to move out into the suburban districts. This movement has taken place in both countries, but has developed to a much greater extent in the U.S.A. As was found in the case of Edinburgh a few firms have moved out and occupied large houses close to the city and in a few instances have built new premises. However, in America office complexes have come into being on the outskirts of many cities, for example on Wilshire Boulevard about seven miles from downtown Los Angeles there are numerous offices.[21]

Recreational landuses surrounded cities in both countries; in most instances parks, playingfields and other intensively used facilities are found close to the built-up area with golf courses, golf driving ranges, show grounds and shooting ranges which meet a more specialised demand being located further afield. This pattern is similar in both the U.K. and the U.S.A., but the latter with its very mobile society and a different concept of distance has a much more extensive, but less intensively utilized fringe area. A similar pattern of entertainment and specialised sporting facilities such as zoological parks, botanical gardens, horse riding stables, sailing facilities, country parks and show grounds has been established in both countries.

The speculative character of urban growth in America, together with only limited planning control, has meant that agriculture in the area around most cities has been subjected to very great pressures. "On the urban fringe it takes a good farmer, or a rich one to hold on to his land

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21. Wissink, op. cit.

and his equilibrium when he is assaulted with rising taxes one day and cajoled on thefollowing by speculators with fat wallets."[22] The owners of farm land adjacent to urban areas have to pay rates which are not based strictly on an assessment of the value of the land, but based on other land sales that have taken place in the neighbourhood. As sales of land for urban uses are also taken into account the farmer finds he is faced with a tax bill far above that which he previously had to pay. This inflated value often makes farming uneconomic, forcing the farmer either to take a part-time job in the city to help pay the tax bill or to sell out for as high a price as can be obtained. If the farmer foresees this possibility he may feel that it would be a waste of money to continue to invest his capital in drainage, fertilizing, farm machinery and building maintenance. As a result a landscape of neglect is often found around urban areas in the U.S.A.

The sale of part of the farm also has an undesirable effect on the economy since every farm must be thought of as an assemblage of fields which function as a unit and the removal of any part will reduce the efficiency of the whole. Other detrimental effects of proximity to urban areas are the damage to ditches, hedges and buildings, which result from work done in adjacent fields; complaints by new residents may also force a change in farm economy and local children and dogs can also disrupt the efficient running of the farm. The incomplete conversion of land from rural to urban uses results in underproduction, a waste of productivity that the community cannot afford. Vacant land is in most cases of little use to the farmer once it has been subdivided, and this could be avoided if more thought was given to the immediate needs of

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22. Higbee, E. "The Squeeze: Cities without space", 1961, 159.

urban expansion. This disruption of farming can be a very serious factor since it may result in an over-willingness on the part of the farmer to sell to anyone who wants the land. The price asked is high, but not excessive, so that the speculator can re-coup his expenditure without having to sell all the lots and this extends the disruptive elements to the farms beyond. In this manner the fringe expands in a vicious circle of disruption. Jean Gottmann[23] notes that adjacent to the cities on the north east coast of the U.S.A. agriculture is sophisticated, a scientific business, and that almost everything that is produced there could be sent from other parts of the country where costs are lower and soils better. The advantage of these areas is their proximity to a large market, where there is a high per capita expenditure. The farms in this area are smaller on average than in the country as a whole, and concentrate on dairying, market gardening and poultry with specialities such as the production of cranberries, mushrooms, ducks and cherries. This type of farm economy is recognisable to a certain extent around all cities in America.

In the U.K. on the other hand agriculture does not suffer from the same degree of disruption, but does display a similar zone of dairy farming, market gardening, poultry and pig farming in the immediate vicinity of a city. Land use planning is largely responsible for this quite marked difference since under the controls imposed in Britain the farming community does not suffer from the same pressures and uncertainties that are prevalent in the U.S.A. Although most farmers are sceptical about the effectiveness of the Green Belt Policy they are not faced with a constant threat of high taxes and urban disruption. Consequently

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23. Gottmann, J. "Megalopolis" The M.I.T. Press, Cambridge, Massachusetts, 1961, Chapter 6.

the worst features of the American fringe area, described above, are not found and urban influence appears to influence only those farms immediately adjacent to housing areas. Here, as was found around Edinburgh, theft and damage to crops, rubbish dumping and dog worrying often necessitate a change in crop rotation, but otherwise little affecting the economy of these farms. Neglect of buildings and land is an uncommon occurrence since most farmers feel that whatever the circumstances, even imminent dispossession, good farming practice should be maintained.

Many of the least desirable features of the rural-urban fringe can be attributed to the fact that the area in which it occurs is often not controlled by one administrative body. In Britain the effects of this fragmentation were reflected in the eagerness of some local authorities adjacent to urban areas to attract suburban development in order to secure additional revenue, and in many instances their inability to put strict controls on the form that this took. This was particularly true of the inter-war years when there was great rivalry and little co-ordination between adjacent local authorities with regard to the attraction of residential development. At the present time, however, although many local authorities would still like to have suburban housing estates located within their boundaries, planning legislation has imposed much tighter regulations. This means that even although the smaller rural authorities are sometimes less rigorous in their planning stipulations the fact that government approval has to be obtained before a change in land-use can be made acts as a safeguard against any undesirable developments.

In the U.S.A. such strictly enforced town and country planning is not universal, and consequently, although the central city is able to enforce controls over expansion within its own administrative area, the

surrounding rural authorities are far less rigorous, some in fact actively try to attract developments without having the administrative or legislative power to impose building standards. As noted by Blizzard and Anderson one key to the understanding of the fringe is political in nature. "Although fringe phenomena occur spatially without regard to political boundaries there is a political aspect in the origin of the fringe. That is, if the political organization of cities had kept abreast of the social and economic organization of the expanding urban population, the rural-urban fringe would be less of a hybrid area and might be less evident. Extensions of the political boundaries of cities tend to reduce and bring under control the types of disorganization which are typical of the fringe."[24] It is often as a result of the eagerness of these rural authorities to secure developments that they feel will add to their limited tax base, that inadequately administered subdivisions have come into being. Wehrwein also commented on this problem, saying that "residential developments in the fringe area must rely on rural forms of government to furnish urban services such as streets, sidewalks, fire protection, water and sewage disposal. Usually rural towns, counties and precincts have no legal powers to do so. Sometimes the statutes are amended to give these rural units of government, unincorporated villages, or special districts the necessary authority to cope with these problems. In most cases, however, whenever residential areas have sufficient population they incorporate themselves as separate villages or cities in order to handle their own tax money for services they need and desire. In this way satellite and neighbouring villages and cities arise in the fringe."[25] This multiplication of authorities adds further

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24. Blizzard and Anderson, op. cit., 2-3
25. Wehrwein, op. cit., 539

complications to the fringe problems since each body draws up its own regulations and can encourage the real estate developer by offering a wide variety of possible locations each with its own zoning laws. Another disadvantage of this fragmentation is that it makes the best solution to many of the problems of fringe areas, the unification under the authority of the central city, much less likely to be achieved since each of these areas is jealous of its hard-won rights. Centralization would seem to be the logical answer to many of the problems of the fringe zone. This has happened in a few cities. Baton Rouge is a case in point. "In 1945 the city, covering five square miles, had a population of approximately 40,000 people. Adjacent to it in a fringe area was a population of another 80,000 in unincorporated parish territory. The larger population was under the governmental jurisdiction of the parish which, with its historic rural orientation was inadequately equipped to provide the urban services needed."[26] Atlanta, Georgia underwent consolidation in 1952, the city boundary having remained unchanged for twenty years, with the result that the surrounding county had to provide municipal services for a large area duplicating those already found in the city. However, despite this trend, municipal fragmentation is still prevalent around most American cities, and is a major contributing factor to the uncontrolled expansion and undesirable features of the fringe areas in that country.

At the present time the rural-urban fringes of cities in the U.K. are characterised by a very sharp inner boundary beyond which there is a zone of discontinuous and isolated fringe land uses. Immediately beyond the built-up area there is little evidence of ribbon development

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26. Taylor, L. "Urban-rural problems", Dickenson Publishing Company, Belmont, California, 1968, 83.

and the residential fringe comprises a few isolated estates and long established villages. These are surrounded by a multiplicity of recreational, institutional and entertainment land-uses which decrease in number outwards from the city across the Green Belt. Settlements within this controlled area will, in most instances, form part of the fringe, but must be investigated along with the ring of towns and villages beyond the outer boundary of the belt. These settlements, along with a few institutions, hotels and recreational facilities form a series of isolated fringe land uses separated from the city and one another by agricultural land which does not depend to any great extent on the adjacent urban market. Agricultural-orientation, apart from pig keeping, is limited to those farms adjacent to the built-up area, and to the market gardens and nursery gardens within a few miles of the city.

In the U.S.A., on the other hand, the fringe comprises a true zone of transition with the urban area becoming less and less continuous outwards. Incomplete subdivision development is the most salient feature, but this may be separated from the urban area by a zone of waste land or neglected property, the heritage of the inter-war period of extensive speculative development. Where this feature is extensive the outer residential suburbs, whether or not they are fully developed, will be cut off from the city and form part of the fringe area. The outer edge of the American city is in general characterised by incomplete development, the amount of vacant land varying in accordance with the strictness of zoning regulations, the number of services provided, the amount of house building land available in the city, the age of the subdivision and many other factors. The character of the vacant property will largely depend on the length of time it has remained undeveloped, but even in the most recent subdivisions their unkempt state lowers the amenity value of the estate itself as well as that of the surrounding

districts. Within or adjacent to these developments there will be large out-of-town shopping centres with their extensive car parks, while along the main roads there are ribbons of commercial and industrial development which reach out for many miles around large cities. Industrial districts are also an important land-use on the outskirts of cities, as are the recreation and entertainment facilities required to meet the demands of a very mobile population with very long leisure hours. With increasing distance from the built-up area the density of houses becomes progressively lower with subdivisions only partially occupied and extensive fingers of urban sprawl reaching out along all the roads. Agriculture in these suburban districts is very disrupted and is under great pressures from the urban area with the result that it is characterised by neglect both of land and buildings and has become what may be termed a "zone of anticipation" where farms still in operation concentrate on dairying, market gardening and poultry keeping, catering to the needs of the urban market.

The overall impression of the American rural-urban fringe is one of disruption, diseconomy and waste, a thoughtless partial conversion of land from rural to urban uses, rendering both inefficient; a product of speculative expansion in a country where land is plentiful, and this along with the strong feeling for the rights of the individual reduces the desire for, and consequently the strictness of, planning controls. This contrasts with the situation in Britain where the fringe area around large cities is characterised by the absence of any marked disruption of agriculture. This results from the strict planning controls which have rationalised the use of land within and around cities. These policies have given rise to a very compact urban area with very few fringe residential extensions, surrounded by a Green Belt of predominantly

agricultural land with numerous recreational and institutional land-uses. The fringe residential area has emerged as a series of satellite towns and villages whose inhabitants have become increasingly employment-orientated towards the adjacent city.

The rural-urban fringe, as has been shown in this thesis, is a feature common to a city throughout its history. However, the fringe area has assumed far greater importance during the present century with the increase in urban sprawl due to greater affluence and improved transport media. This area represents the initial stages of urban expansion into the surrounding agricultural area and the pattern of land-uses and the functions found, clearly reflect the social, economic and political forces in operation at any particular period. The problem of the form that city growth should take is of great importance due to the ever increasing rate of urbanization throughout the world over the past decades. This trend will continue and it is essential that ~~many of~~ the undesirable effects of urban expansion should be avoided wherever possible.

In this thesis Edinburgh has been chosen to exemplify the form and process of fringe development in Great Britain, emphasising the factors that have influenced the spread of the city during three contrasting periods of social and economic development. The conclusion outlines urban growth during the twentieth century both in the U.K. and North America and has emphasised the similarities and differences between city growth in these two advanced countries. Since Britain has recently changed from a period of unplanned to planned expansion while in the U.S.A. planning controls have been lax, this comparison highlights many of the problems of the rural-urban fringe.

With the increasing awareness of the need to conserve land wherever possible even although this may not be of crucial importance at the

present time, residential, industrial and commercial sprawl cannot be allowed to go unhampered, especially with increasing personal mobility. It is essential that the rural-urban fringe should be carefully observed by the authorities so that expansion can be guided in order to ensure that the best possible living conditions are achieved for the growing number of city dwellers, providing them with good access to work, shops and recreational areas, but still preserving from disruption the farms in the adjacent districts. This is a problem that is only now receiving careful consideration. It has come too late for some cities, especially many in North America, but it is hoped that with the information provided by numerous studies of the form, function and evolution of urban expansion carried out throughout the world, town planners will be able to solve many of the problems found in rural-urban fringe areas. These studies will be of great help not only to planners in advanced countries where this zone is already receiving a great deal of attention, but also to planners in the developing countries where cities are growing very quickly and urgent action is required if many of the undesirable fringe features are to be avoided.

APPENDIX I

The delimitation of the inner boundary of the fringe

The inner boundary of the fringe is of great importance since it is the line at which an investigation of the rural-urban fringe must begin. Objectivity in arriving at the delimitation of this line is essential so that comparisons can be made of the fringe area of one city at several periods in its history or of different cities at the same point in time.

Since housing areas are the major land-use component of any city any definition of the outer limit of the built-up area must be determined by studying the spread of residential developments and their interaction with other urban land-uses. The centre of most cities is characterised by the close juxtaposition of buildings, but with increasing distance out from the core area the proportion of open space land-uses becomes greater. On the basis of this assumption it is necessary to analyse each housing area to establish its links with the compactly built-up area.

Physical detachment of a suburban housing area will result in its inclusion within the rural-urban fringe where agricultural land or open space recreational land which is continuous with open countryside beyond, separates the houses from the built-up area. This break should be such that the people living in the peripheral estate have a feeling of separateness from the rest of the city. The areal extent of this open-

space cannot be categorically stated, but will depend on both the size and character of the housing area being considered. It need not, however, be very great if the density of the houses is low and if they lie close to an adjacent old village, since these characteristics supplement physical distance by fostering a feeling of being apart from the city.

Ribbon expansion along the main roads is normally the initial stage of urban expansion and as such is present at most periods of urban history. However, during the inter-war years this form of city growth reached its zenith. Of those ribbons continuous with the built-up area only those comprising one or two rows of houses should be included as part of the fringe and they lose this status once they have been encroached upon on either side.

The density of a housing estate on the periphery of an urban area is also of great importance since if it is very low, up to three houses per acre, the large gardens or open-spaces give a feeling of rurality in keeping with the fringe area. Only when housing areas of much greater density are developed around these houses are rural aspect and amenity lost.

As the urban area expands it will often surround neighbouring villages, but in a few instances this process has not been completed and a small settlement is found on the edge of the urban area. Where this is the case and the village still retains many of its shops, services, industries and social identity it should be taken as part of the fringe area.

Making use of the proximity of housing developments as a point of reference the remaining urban land-uses can be investigated. Their inclusion/or exclusion from the built-up area will depend on the extent to which they have been surrounded by residential expansion. However,

it must be emphasised that around the periphery of the city land-uses should not be considered in isolation. Groupings of land-uses must be taken into account, since together they may form part of the fringe despite the fact that individually they may have almost been surrounded.

Since industrial sites are largely built-over they are readily assimilated into the city proper. It was therefore felt that individual or small groups of factories should lose their fringe classification when they become linked to the built-up area on two sides. On the other hand in the case of the much larger industrial estate encroachment must be on three sides, as is also the case with railway facilities, scrap yards, rubbish dumps and quarries.

In a similar way, hospitals, asylums, sanatoria, old people's homes, children's homes, monasteries, convents, residential or private schools, universities, research facilities, prisons, remand homes, hotels, restaurants, dance halls, bowling alleys, ice rinks and social clubs which have not been established in spacious parks or grounds only have to be linked to the urban area on two sides to lose their fringe location. However, if any of these land-uses gain additional spaciousness from surrounding policies they remain as part of the fringe until completely surrounded. This also applies to large country houses, military establishments, airports, caravan parks, golf driving-ranges, zoological parks, botanical gardens, show grounds, horse riding stables, race tracks and rifle ranges, all of which occupy large areas of land with few buildings.

Parks, playingfields, sports areas, golf courses, market gardens, nursery gardens, allotments, small holdings and farms are essentially fringe land-uses and only lose this characteristic when completely surrounded.

However, cemeteries although they cover extensive areas do not provide the same type of open-space amenity and consequently once they become continuous with the urban area on two sides they cease to form part of the fringe area.

Vacant or derelict land reflects the dynamic character of urban expansion and should at all times be classified as rural-urban fringe, unless entirely within the built-up area.

These premises if applied rigorously aided by an intimate knowledge of the city being studied will make it possible to delimit the outer edge of the built-up area.

APPENDIX II

The city boundary

The role of the city boundary in a study of the rural-urban fringe cannot be categorically defined since it does not necessarily encompass the entire fringe. However, only occasionally are settlements within the city limits uninfluenced by the adjacent urban area other than the latter's administrative controls. This is most likely to occur where point production, such as mining, forms the "raison d'être" of the small settlement.

In one instance, however, the administrative boundary is of crucial importance. This occurs when the boundary cuts across a continuously built-up area. In this case, if a study is being made of a particular city, then those settlements adjacent to it, regardless of whether or not they have come to form a single urban area with the neighbouring city, must be considered as potential fringe communities. If the evidence is not sufficient to include the neighbouring settlements within this fringe area the city boundary will form the outer as well as the inner limit of the rural-urban fringe at the point of contact.

Where the administrative area is not a single unit, but is made up of a central city and one or more outlying suburbs, then each of these sub-units will form part of the fringe area because their inclusion as part of the city's administrative area will in most cases have resulted from strong links which have developed between them and the

adjacent urban area.

In considering the part played by the administrative boundary in a fringe study of any particular city the most important feature is its role as the inner boundary of the fringe between continuously built-up areas, but apart from this the specific character of the land-uses must be studied to determine whether or not they can be included as part of the rural-urban fringe.

APPENDIX III

The potential fringe area

This section deals with many of the decisions which have to be taken in delimiting the area of the urban fringe, and it is hoped that it may act as a guide for future research into the rural-urban fringes of cities in Great Britain.

The spread of a city's residential influence can result in several different ways, the outward expansion of the built-up area, the movement of people out to adjacent towns and villages, and the attraction of the residents of neighbouring towns and villages into the city to work.

During the nineteenth century due to the fact that people preferred to live in a close knit social community and in the absence of a flexible transport network urban growth tended to take place along a broad front within a particular district, with the result that only a few low density, separate or incomplete residential areas could be included as part of the rural-urban fringe. However, improved private and public transport media towards the end of the nineteenth century greatly facilitated the outward movement of families, and this coming at a time when more and more people wanted to escape from the crowded city resulted in the quite rapid growth of the surrounding villages. This necessitates an investigation of these settlements in order to establish their relationship to the adjacent urban area. A certain

amount of relevant information can be gleaned from literary sources, but since this is rarely specific in character, it is desirable to have other corroborating evidence. This is provided in part by the Valuation Rolls, property reports compiled annually since 1855. These books give the addresses of each individual property, the type of property, the owner, the tenant, the sub-tenant, occupation of the tenant (not in every instance), and the length of lease if applicable. From this information a fairly detailed assessment can be made of the employment character of each village and when this is compared with the local job potential the degree to which the village people depend on the city for work can be gauged. However after 1920 this quite detailed employment information became less and less satisfactory and the reports should not be used after that date. The Valuation Rolls also list shops, which makes an evaluation of the retail self-sufficiency of the settlement possible. Additional evidence of interaction between outlying communities and the city can be got through an investigation of the transport facilities operating between them, since the frequency of these services will be indicative of demand. Regular coach services, a suburban or branch line railway and at a later date the development of a tramway system and bus service are of special importance when they serve settlements outside the built-up area.

The Valuation Rolls can also be used to establish the occupations of the people living in the mansion houses around the city. Although this information is not recorded in every instance sufficient data is available to indicate the extent of the dormitory fringe for the more prosperous citizens. As has already been mentioned, after 1920 the Valuation Rolls are no longer reliable for this purpose.

Although there was no revolutionary change in the pattern of urban growth at the end of the nineteenth century, changing social standards aided by improving transport, especially the greater flexibility offered by private motor car and the bus, resulted in a much more widespread urban area. The most common feature was ribbon development out along the main roads towards and in some cases beyond neighbouring villages which had already emerged as dormitory communities. However, for those villages where this status has not previously been established it is necessary to make a study of population, local employment opportunities, numbers of people employed in local industries, movement into the city to work and the outward movement of people from the city to live in the adjacent villages. Only those settlements which show clear evidence of increasing population, a stable or declining employment potential, good transport links with the city, and new private housing developments, can normally be included within the fringe area.

The large isolated housing estates located in semi-rural surroundings should also be considered as part of the fringe area, provided that they are an integral part of the city's residential structure.

The controls placed upon urban development by successive Parliamentary Acts after 1947 severely curtailed the "laissez faire" attitude of urban expansion found in the pre-war era. The long fingers of residential expansion which had developed during the inter-war years were recognised to be a wasteful use of land and a disrupting influence on agriculture, and faced with the possibility of increased personal mobility the need for some measure of control over this form of urban expansion became increasingly pressing.

The problem of city growth had been received considerable

attention during the 1930's, especially with regard to London where the worst effect of uncontrolled sprawl were first observed. Prompted by the conclusions of several pre-war reports and faced with ever increasing public demands for action the Government passed the Town and Country Planning Act in 1947. This Act stated that every local authority had to prepare a Development Plan of its own administrative area. This plan was to include an inventory of all the land uses in the area and in addition was to make proposals for any change in land-use and urban expansion. This document, the report and associated maps, was then to be submitted to the Ministry of Housing and Local Government by the English local authorities, and to the Secretary of State for Scotland by their Scottish counterparts. A study was made of all the proposals in the report and after close consultation with the local authority, its Development Plan was accepted. Thereafter, the local authority had to work within the provisions of the Plan, and could only make alterations after written permission had been given by the relevant Government Minister. Each Development Plan was to form the basis of local authority planning for a period of twenty years, when a review would be carried out to allow the Plan to be altered if necessary.

The influence of planning legislation on the towns and cities of Great Britain is most clearly reflected in the fact that despite subsequent urban growth and improved transport media the limits of the built-up area in 1967 are very similar to the maximum extension of ribbon development prior to the 1947 Act.

The creation of Green Belts around large urban areas has been of importance in restricting urban growth. Control by this method had been advocated in medieval times, but only after Sir Raymond Unwin's study of London in the 1930's was public attention drawn to the

seriousness of the situation. "In the late 'thirties' the rate of building rose to a peak and 'development' engulfed whole towns and villages (around London). Some of the Home Counties had already acquired land to prevent the spread of building, but it was the London County Council who, at the request of the Regional Planning Committee took the initiative towards realising Unwin's 'Green Girdle'. In 1935 they put forward a scheme (which owed much to Lord Morrison of Lambeth), to provide a reserve supply of public open spaces and of recreational areas and to establish a green belt or girdle of open space lands, not necessarily continuous, but as readily accessible from the completely urbanized area of London as practicable. The Council offered grants to the Councils of the Home Counties and other local authorities towards the cost of acquiring or preserving land for inclusion in this green girdle."[1] This initial activity was laudable, but in 1944 Professor Sir Patrick Abercrombie in an advisory plan for Greater London, which he had been asked to prepare by the first Minister of Town and Country Planning, noted that in the face of the continued outward creep of the city a series of new towns should be established around the outer boundary of a zone of permanent open land.

In 1947 legislation gave each Local Authority the power to designate land for agriculture or recreation, instead of each Council having to buy the land, as had previously been the case. As a refinement of these powers the Minister of Housing and Local Government advocated the introduction of a Green Belt Policy, making it possible for local authorities to designate areas permanently as open-spaces. London was the first city to make use of this legislation, other cities preferring

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1. Ministry of Housing and Local Government "The Green Belts", 1962, H.M.S.O., 2.

to maintain control through their Development Plans. The Minister, however, continued to press for the creation of clearly defined belts of open country around large cities and his persistence resulted in the submission of applications by many cities.

This policy has had such a great influence on the rural-urban fringe areas around cities in Great Britain that a full account will be given of its aims, objectives and implementations.

"Green Belts"

1. Following upon his statement in the House of Commons on April 26th last (1955) I am directed by the Minister of Housing and Local Government to draw your attention to the importance of checking the unrestricted sprawl of the built-up area, and of safeguarding the surrounding countryside against further encroachment.
2. He is satisfied that the only really effective way to achieve this objective is by the formal designation of clearly defined Green Belts around the areas concerned.
3. The Minister accordingly recommends Planning Authorities to consider establishing a Green Belt wherever this is desirable in order:
   (a) to check the further growth of a large built-up area;
   (b) to prevent neighbouring towns from merging into one another, or
   (c) to preserve the special character of a town
4. Wherever practicable, a Green Belt should be several miles wide so as to ensure an appreciable rural zone all around the built-up area concerned.
5. Inside a Green Belt, approval should not be given, except in very special circumstances for the construction of new buildings or for the change of use of existing buildings for purposes other than

agriculture, sport, cemeteries, institutions standing in extensive grounds or other uses appropriate to a rural area.

6. Apart from a strictly limited amount of "infilling" or "rounding off" (within boundaries to be defined in Town Maps) existing towns and villages inside a Green Belt should not be allowed to expand further. Even within the urban areas thus defined, every effort should be made to prevent any further building for industrial or commercial purposes; since this, if allowed, would lead to a demand for more labour, which in turn would create a need for the development of additional land for housing.

7. A Planning Authority which wishes to establish a Green Belt in its area should, after consulting any neighbouring Planning Authority affected, submit to the Minister, as soon as possible, a Sketch Plan, indicating the approximate boundaries of the proposed Belt. Before officially submitting their plan, authorities may find it helpful to discuss them informally with this Ministry either through its regional representative or in Whitehall.

8. In due course, a detailed survey will be needed to define the inner and outer boundaries of the Green Belt, as well as the boundaries of towns and villages within it. Thereafter, these particulars will have to be incorporated as amendments in the Development Plans."[2]

"Boundaries of Green Belts

3. The one-inch County Map will show the whole area of the Green Belt falling within the county, apart from any area covered by Town Maps. On the outer edges of a Green Belt it should be possible to choose

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2. Ministry of Housing and Local Government, 1955 "Green Belts" Circular No. 42/55, 3rd August, H.M.S.O. England.

a suitable boundary along roads, streams, belts of trees, or other features which can be readily recognised on the ground and which appear on the one-inch base map.

4. On an inner boundary, however, where the edge of the notation will mark a long term boundary for development, treatment at a larger scale will be necessary. Where such boundaries fall in Town Map areas no difficulties of scale will arise; but where they do not, authorities are advised to adopt the 1:25000 (approximately 2½") scale, seeking the Minister's permission under Regulation 3 (2) of the Development Plan Regulations, 1948, for the submission of a section of the County Map at the larger scale. This larger scale inset is still legally part of the one-inch County Map and should show no more detail than is normally shown on that map.

5. The definition of a long term boundary for development may involve detailed adjustments (either inwards or outwards) in the boundary of the area already allocated on a Town Map. Where land allocations are to be deleted or additional land allocated for development within the Plan period, the adjustments can be included in the same submission as the Green Belt proposals.

6. There may be some pockets of land, between the town and the Green Belt, which are not to be developed within the present Plan period, but which could be developed later without prejudice to the Green Belt. It would be misleading to allocate such areas now, but to include them in the Green Belt for the time being might give rise to difficulties and undermine public confidence in the Green Belt at a later date if it were decided to allocate the land for development. Such areas may well be left as pockets of "white" land. They are then bound to be especially attractive to developers and it will be desirable to set out in a Written Statement the

authority's policy for such areas in order to make it clear that they are not available for development at the present time.

Existing Settlements

7. Where it is proposed to allow no new building at all, the Green Belt notation can be simply carried across the settlement. Where it is proposed to allow "infilling" but no extension of a settlement, and the form of the present settlement is such that it is clear what "infilling" would imply, the Green Belt notation can similarly be carried across the settlement. These settlements, however, will need to be listed in the Written Statement in order to distinguish them from the first category.

8. The need to map the limits for development of a settlement is likely to arise only where the authority propose to allow some limited measure of expansion, or where the existing development is scattered and the authority consider it necessary to show in the Plan their precise intentions, e.g. to permit the closing of some gaps by infilling but not others. In such cases a County Map inset on the 1:25000 (approximately 2½") scale will normally be needed.

Written Statements

11. Most Green Belts will lie in the areas of more than one planning authority. It will clearly be desirable in such cases to secure a consistent development control policy over the whole Green Belt, and authorities will wish to consult with other authorities concerned to secure such a policy. Specimen forms of words are set out in the Appendix to this circular in order to provide a basis for co-operation in drafting of Written Statements.

Rural Areas Generally

12. It is important that the specially strict control in the Green Belts (and in the areas of landscape value) should not result in

permission being given elsewhere for development which is inappropriate or detrimental to the countryside."[3]

Ribbon development ceased to be acceptable under the new planning controls and any proposed extension along the main roads was prohibited. Building was channelled into the large areas of open space in the interstices between the star-like pattern of the inter war housing areas.

In each Development Plan house building land was zoned for use by either the local authority or private contractors. This resulted in a period of intense competition as private building firms vied with one another in order to secure as much of this land as possible. In contrast land zoned for local authority housing lay beyond the reach of the private contractor and in most cases was not bought until it was about to be developed.

Within a decade of the 1947 Act much of the private house building land within many cities had been developed and this forced land prices even higher as private building firms tried to secure the remaining land. The rapid development of most of the land within the city which was zoned for residential purposes in the Development Plan led to demands for a reappraisal of the Green Belt Policy. However, before any change could be made in the boundary of this area the approval of the Minister responsible is necessary and this is very difficult for the local authority and almost impossible for the private developer to secure. To meet its own housing requirements local authorities have often been forced to recommend that changes be made in the inner boundary of the

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3. Ministry of Housing and Local Government, 1957 "Green Belts" Circular No. 50/57, 19th September, H.M.S.O., Great Britain, 1-3

Green Belt, but the private developer was forced to look elsewhere for house building land. This led many contractors to overstep the Green Belt and build their housing estates in the villages around its outer edges. It is to these quite distant settlements that the student of the rural-urban fringe must look, in order to establish the extent of urban residential influence at the present time.

In addition as local employment possibilities have declined many village people have taken advantage of the varied employment opportunities available in the nearby city, and this has averted the need for out migration of families. In many cases the influx of families from the city and elsewhere has resulted in an increase in the village population. These towns and villages begin to assume a dormitory role, but as would be expected they never approach the status of a dormitory suburb since they retain many of the functions and much of the social independence of the original settlement. Consequently only after making a detailed study of the social and economic basis of a town or village can its fringe character be ascertained.

In Scotland the large and small burghs can be studied by means of the decennial census which provides statistics on population and place of work both in 1951 and 1961. In addition the information recorded in the Board of Trade Census of Distribution 1950 and 1961 can be used to establish the retail and service characteristics of the larger towns. Industrial employment numbers both for the past and the present can usually be ascertained, giving a further insight into the economic base of the settlement. On the basis of this information it is then possible to estimate the number of jobs available in the town and this can be compared with its total labour force. Retail and service trade characteristics of the town can be studied in terms of average turnover for each establishment, the average per capita turnover for the

population of the town, the average number of people in the town to each establishment and the average number of employees in each establishment. These figures can then be compared with the national average and in this way used to ascertain the retail self-sufficiency of the town.

Only after a very detailed investigation is it possible to estimate a city's employment and service influence over neighbouring settlements. This statistical information will place the community somewhere between the dormitory settlement at one extreme and an independent town at the other. It is felt that the inclusion of a settlement within a city's fringe area should depend on its fulfilling the following characteristics, at least one third of its total labour force working in the adjacent city, the number of local jobs is static or declining, increasing population, evidence of retail and service developments in the village. This spread of urban residential influence was remarked upon by T. W. Freeman when he wrote ".... there is also a considerable suburban settlement in villages close to towns, or in groups of houses beyond the administrative boundaries of towns. This is not, as many people assume, something new, for the whole process of growth in our towns has involved both the addition of houses in neighbouring villages and along roads, new and old, beside existing towns."[4] This movement, as Freeman goes on to elaborate, has been in profess for many centuries, but became much more apparent with the coming of the railway, and at a later date the widespread use of the bus and private car.

Over the past fifteen years many small villages beyond the Green Belt have grown quite considerably. Unfortunately the census does not

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4. Freeman, T.W. "Geography and Planning" Hutchinsons University Library, No. 39, London, 1958, 56

include specific information for these small settlements. The 1951 census did give workplace statistics for settlements of over 1,000 inhabitants, but this was discontinued in the 1961 census when information was given for the much larger District of the County. The absence of good data makes it necessary to survey each of the villages within and around the Green Belt area.

Ideally this should take the form of a personal door to door survey, but since the large number of settlements made this impossible a questionnaire* and stamped addressed envelope were delivered to what was felt to be a representative proportion of the houses in every village. Each social area within these communities was established and questionnaires delivered in proportion to the number of dwellings in each group.

When processed the information gathered in this survey established the importance of the city as a place of work for the people living in the village in both an overall scale and within each individual family. Material was also gathered with regard to the shopping and social life of those living in the settlement.

As has already been noted with reference to the larger settlements it was felt that at least one third of the village labour force should work in the city if the community is to be classified as part of the rural-urban fringe. The researcher should proceed outwards from the outer boundary of the Green Belt studying each successive settlement until the employment influence of the city falls below this level. This marks the edge of the rural-urban fringe since an element of continuity out from the Green Belt is an essential characteristic of the fringe area.

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* Appendix IV

The foregoing discussion has emphasised the role of employment in determining a settlement's location within the fringe. This is based on the fact that although a social and economic study of the area would give a more detailed picture, employment would appear to be the best single index since daily interaction of people travelling between two settlements will lead to a wide range of other forms of contact between them.

Adding weight to these conclusions Otis D. Duncan and Albert J. Reiss Jr., after an exhaustive analysis of the detailed information available in the United States Census concluded that "The above findings prompt one other comment on the nature of the fringe. In most characteristics of the resident population there is a close similarity between the urban and rural non-farm fringe. This becomes particularly evident when the differences between urban and rural non-farm and the remaining components of the metropolitan area are noted. Such a finding strongly suggests that the rural non-farm population in the vicinity of a large city consists primarily of urban orientated residents. Many of these no doubt live in the so called 'ribbon developments', which do not qualify as urban under the procedures used fordelimiting urbanized areas, but which might well be regarded as urban under a somewhat more flexible definition. Unfortunately, one cannot determine from census statistics where fringe residents earn their livelihood. For fringe studies particularly it might be desirable to determine rural-urban status on the basis of the place of work rather than on residence."[5]

In the same work, on the zone which should be studied as part of the fringe the authors note that "Such areas as the periphery of a city

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5. Duncan O.D. and Reiss, A. J. Jr. "Social characteristics of urban and rural communities 1950" A volume of the census monograph series, Wiley, New York, 1956, 150.

probably represent

1. Areas of relatively recent urban expansion and habitation, or:

2. Former rural centres - hamlets and villages, relatively recently enveloped in the radial growth of the city."[6]

The remainder of this section will deal with the other land uses which together with residential areas make up the rural-urban fringe.

During the early nineteenth century industrial establishments and workers' houses were located close together and as a result peripheral factories were only found where special sites were required or when city bye-laws expelled industries from the built-up area. However, with the coming of the canal and later the railway, the lack of space often prohibited the entry of these new transport media into the city centre, and their peripheral termini became the foci of new factory concentrations. Nevertheless, all factories located beyond the outer limit of the built-up area must be shown to depend on the city for labour, raw materials or market before they can be included as part of the fringe area.

A similar distribution of industrial premises continued until the end of the First World War when the growing importance of road transport resulted in a number of light industrial enterprises being established in semi-rural surroundings on the outskirts of the city.

With the introduction of planning legislation, the theoretically free choice of industrial location of the previous centuries came to an end and a new land-use grouping was introduced. This was the industrial estate, an extensive area of land set aside solely for industry and provided with a full range of facilities and excellent transport access. In most instances, because of their large size these estates were

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6.ibid., 134.

located on the periphery of the urban area. Where these estates lie outside the inner boundary of the fringe they form part of the fringe area provided that they consitute an integral part of the city's industrial structure.

During the nineteenth century there was a fundamental change in the location of urban institutions, since it was no longer considered acceptable for them to be situated in the oppressive and insanitary surroundings prevalent in the city centre. However, although private endowments or public subscriptions enabled hospitals, poor houses, asylums and sanatoria to be established in semi-rural surroundings, they tended to choose sites close to the periphery of the built-up area. As is the case with all the different kinds of institutions, a strong link with the city must be established before they can be included within a city's rural urban fringe.

After 1900 many more medical institutions were established and as transport facilities had been greatly improved and quite remote locations could be considered if this was felt to be desirable. In many cases large mansion houses in the vicinity of the city were converted into homes, hospitals and schools, but many new buildings were also erected.

The multiplication of institutions continued after the Second World War with hospitals, convalescent homes, old people's homes, children's homes, convents, monasteries, schools, universities, training colleges, remand homes, borstals, open prisons, research institutes to name but a few, being established on the outskirts of the city.

An increasing number of offices have also found it advantageous to move out to suburban sites.

In the early nineteenth century the city regiment was still an important feature of urban life, with the barracks and parade grounds either within or close to the urban area. However, with the increased

scale and complexity of the armed forces which followed the outbreak of the First World War, new barracks and extensive training areas were required and these through necessity had to be located in peripheral areas. However, these facilities should only be included within the fringe area if they represent an expansion of the city regiment's facilities or if they were strongly affiliated to the adjacent urban area.

Prior to 1850 parks and playing fields played a minor role in the everyday life of city people, and were consequently limited to the town common and a few small sports areas.

However, as leisure time increased during the 19th century there was a growing awareness of the need to provide open space facilities. This resulted in the opening of more and more public parks, but these were never very far from the edge of the built-up area. Golf, on the other hand, once it outgrew the facilities provided on the Town Common had to be played on courses often located several miles from the city centre where suitable open space could be found.

After 1900 in response to increasing demand the city authorities established numerous neighbourhood parks close to residential developments as well as a few larger natural parks in high amenity areas around the city. Playihg fields were also becoming increasingly important, but they tended to cluster close to the urban area ~~which was~~ in striking contrast to the wide scatter of new golf courses.

Entertainment and specialised recreational facilities have come to play an increasingly important part in everyday city life, but only a few such as the horse racing track, botanical gardens and zoological park have been in existence for many years. However, as incomes and leisure time have increased during the twentieth century other facilities

such as hotels, road houses, dance halls, riding schools, pony trotting, golf driving ranges, rifle ranges, dog race tracks, motor race tracks, exhibition parks, artificial ski slopes, bowling alleys and many others have been developed. In considering these land-uses the area within seven to ten miles of the city should be investigated but in each case a functional link with the adjacent urban area must be established before these facilities can be included as part of the rural-urban fringe.

With the introduction of commercial air travel the demand generated by the large number of people in cities resulted in the location of airports close to these population concentrations. The increasing use being made of the caravan for holiday purposes and as temporary or permanent homes has led to the opening of caravan parks close to large cities. In both of these cases evidence of strong ties with the adjacent urban area necessitates their inclusion within the fringe area.

Cemeteries are normally located outside, but close to the built-up area since accessibility to them is of great importance. Consequently when first established they will often form part of the fringe.

Reservoirs which also act as recreation areas should be included in the rural-urban fringe along with peripheral filtration plants.

The extent to which the economies of the surrounding farms are orientated towards the urban market is another important illustration of a city's fringe influence. In determining this, however, the land-use map is only of limited value since it will only give the location of market gardens and nursery gardens. Literary evidence is of great importance in such an investigation especially the New Statistical Account of Scotland published in 1845 and the Land Utilization Survey of Great Britain was carried out under the guidance of L. D. Stamp in the 1930's. The Parish Agricultural Returns published annually since 1866 by the Department of Agriculture and Fisheries are of great value

since these statistics, which include crop acreages and animal numbers, make it possible to establish those areas which depend heavily on being able to sell their produce especially milk cows, pigs, market garden produce, nursery garden produce and potatoes in the adjacent urban market. Unfortunately since this information is given on a parish basis it is not as detailed as would be desirable, but taken in conjunction with the literary material available, the agricultural area orientated towards the city market can be determined.

At the present time in addition to the use of the previously mentioned methods of investigation it is possible to carry out a questionnaire survey* of the farms, market gardens and small holdings around the city in order to determine more accurately the area sending produce into the city.

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*Appendix V

APPENDIX IV

This is a copy of the questionnaire which was delivered along with a stamped addressed envelope to houses in nineteen villages around Edinburgh as part of the survey to establish their links with the city.

Dear Sir/Madam,

I wonder if you would be kind enough to help me in some work I am doing at Edinburgh University. I am making a survey of the villages around the city as part of my university degree. As you will see from the form no names or addresses are asked for, and as the survey is for my own personal use any information that you give me will be held in the strictest confidence. I do hope that you will take the time to answer the fourteen questions and return the form to me in the envelope provided. Thank you very much for your help.

Yours truly,

(Alan J. Strachan)

1. Name of the village in which you live?
2. How long has the family lived in the village?
3. Which town or village did the family live in before?
4. Why did the family come to live in this village?
5. How many of the family go out to work?

6. Do any of the family work in Edinburgh? Husband

Wife

Children

"

7. How long have they worked in Edinburgh? Husband

Wife

Children

"

8. Where is the everyday shopping done?

9. How many times did you travel into Edinburgh to shop last week?

10. What type of things did you buy?

11. How many times have you gone to the theatre or cinema in the last two weeks?

12. How many of these visits were to Edinburgh?

13. How do you travel to Edinburgh for work?

14. How do you travel to Edinburgh for pleasure?

APPENDIX V

This is a copy of the farm interview questionnaire which was used by the author in an attempt to estimate the degree of influence that the city exerts on the surrounding agricultural area.

1. Name of the farm?
2. Owner or tenant of farm?
3. Shape and position of farm?
4. Loss of land to the city, if any?
5. Effect of this loss, if any?
6. Full-time or part-time farmer?
7. Other employment, if part-time?
8. Effects of housing areas close to the farm?
9. Complaints made by people living near to the farm?
10. Views of the farmer on the proximity of housing areas?
11. The effect of the city on the economy of the farm?
12. What specialisations, if any, are specifically orientated towards the city market?
13. Are these specialisations carried on under contract?
14. Is the farm within the Green Belt area?
15. What effect does the location within the Green Belt have on the economy of the farm in terms of security etc?
16. What do you think of the Green Belt Policy?
17. Would you sell the farm for building purposes if you were allowed to do?
18. Do you find the proximity of the city advantageous or disadvantageous?

19 Faced with eviction would the economy of the farm be left to run down?

20. Would buildings be allowed to deteriorate and machinery not be replaced?

21. General comments by the farmers

22. General appreciation by the author of the state of upkeep of the farm buildings, farm house and the land?

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